DOCUMENT RESUME

ED 349 130 RC 018 747

TITLE	Northern Nutrition.
INSTITUTION	Northwest Territories Dept. of Education, Yellowknife.
PUB DATE	78
NOTE	250p.
PUB TYPE	Guides - Classroom Use - Teaching Guides (For Teacher) (052) -- Guides - Non-Classroom Use (055)
EDRS PRICE	MF01/PC10 Plus Postage.
DESCRIPTORS	Adult Education; *Canada Natives; *Dietetics; Eating Habits; Elementary Secondary Education; Eskimos; *Food; Foreign Countries; Health Education; *Health Promotion; Lesson Plans; *Nutrition; Nutrition Instruction; *Physical Health
IDENTIFIERS	Arctic; Canada (North)

ABSTRACT

This guide contains nutrition information and nutrition education strategies aimed at residents of the Canadian Arctic. Section I: (1) defines nutrition terms; (2) describes the sources and functions of essential nutrients; (3) explains Canada's food guide and special considerations for the traditional northern Native diet and for lactose intolerance (a common condition among Eskimos and American Indians); (4) describes the digestive system; and (5) discusses special nutrient needs during pregnancy and breast feeding, and for infants, adolescents, and older adults. Section II discusses the interrelationships between physical fitness, lifestyle, and nutrition; describes the rise of nutrition-related diseases (obesity, cardiovascular disease, dental problems) among northern Natives due to lifestyle changes; and presents dietary guidelines. Section III discusses nutrition and specific health problems (diabetes, gall bladder disease, Vitamin C deficiency, otitis media, iron deficiency, and alcoholism). Section IV discusses meal planning and food buying. Section V discusses Native food resources, outlines the nutrient value of traditional Native diets, and explains some dangers of eating raw meat and fish. Section VI discusses modern and traditional methods of food storage and preservation. Section VII presents ideas, activities, and lesson plans for community nutrition programs. Sections VIII and IX explain how to use the local mass media for nutrition education and provide sample media releases. Section X provides additional resources: 26 government agencies and other sources of nutrition materials, 6 books, and annotated lists of 40 films and videotapes. (SV)

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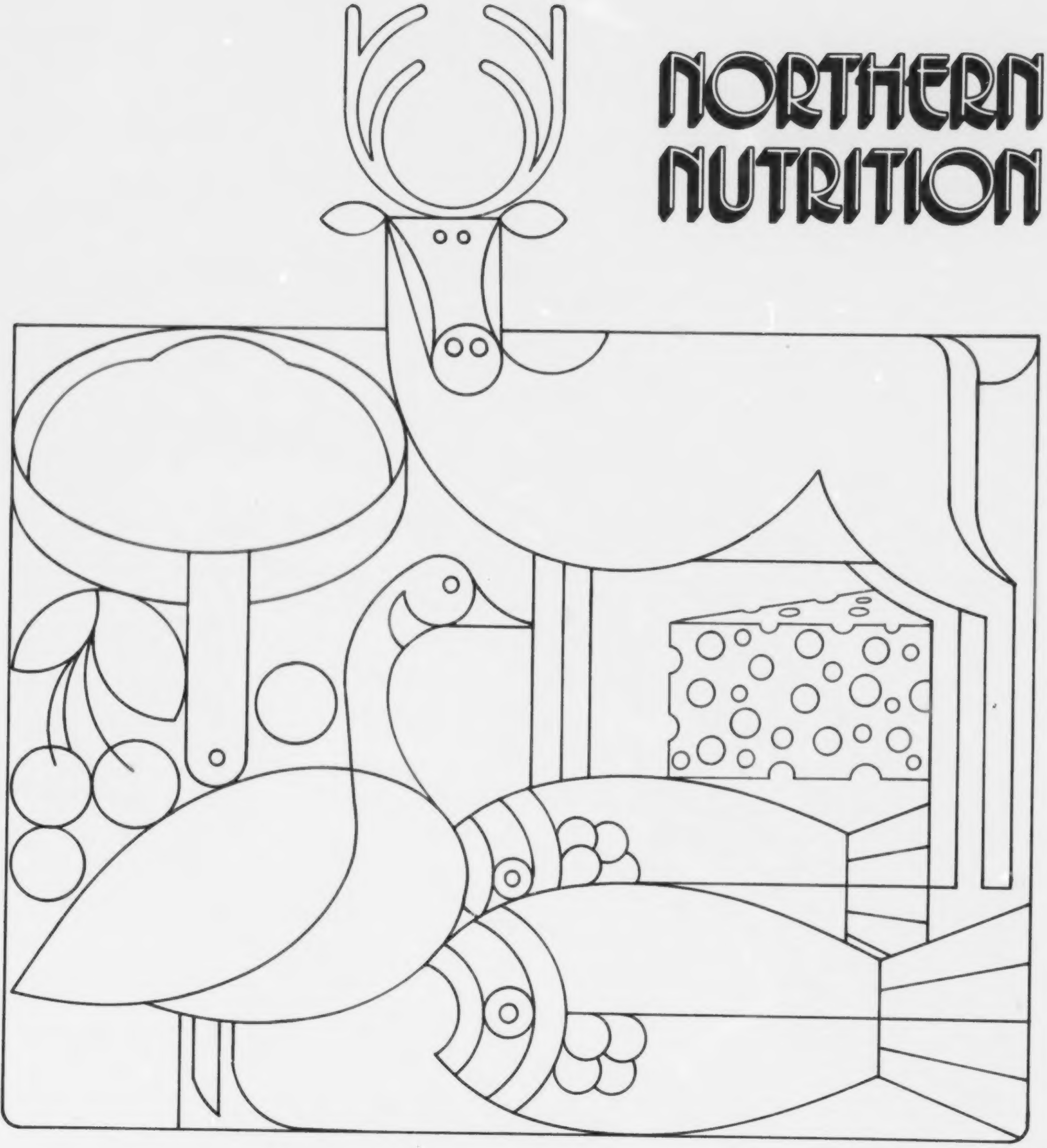

EDUCATION PROGRAMS AND EVALUATION DIVISION
DEPARTMENT OF EDUCATION
NORTHWEST TERRITORIES

FOREWORD

This resource guide has been prepared to serve as a reference source including nutrition information and nutrition education strategies.

Nutrition is the number one priority of Home Management Programs in the Northwest Territories. Providing people with information that will assist them in making the "best" nutritional choices will contribute substantially to the well-being of northern individuals and families.

It is our sincere wish that "Northern Nutrition" will prove helpful in presenting programs which suit community needs and contribute to improving the nutritional status of Northerners.

Chief
Education Programs and Evaluation
 Division
Department of Education

ACKNOWLEDGEMENTS

Northern Nutrition is the end product of months of research, writing and gathering of resource materials by Jan Williams-Russell.

It is with sincere thanks that we acknowledge her contribution to nutrition education.

Additionally, we extend our gratitude to Jill Christensen, Nutrition and Dietetics Consultant, Department of Health and Social Services, for her assistance as specialty content editor.

Coordinator
Health and Social Programs
Education Programs and Evaluation
Division
Department of Education

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SECTION I

NUTRIENTS AND THEIR USE BY THE BODY

WHAT NUTRITION TERMS MEAN

These are definitions of some commonly used nutrition terms. More detailed descriptions of these terms are found in other sections. Refer to this section for a quick definition as you read through this book.

Additive

A substance added to another in very small amounts to provide or enhance desirable properties (such as making it stay fresh longer) or to suppress undesirable properties (such as preventing mould).

Appetite

A physical craving for food.

Calorie

A unit for measuring the energy-producing value of food when it is used by the body. This is indicated by the symbol Cal. As all references in this text relate to food chemistry, the lower case "c" calorie may be considered to be equivalent to the upper case "C" Calorie.

Note: Eventually the Calorie will be expressed as kilojoules with conversion to S.I. (Systeme Internationale)
1 Cal. = 4.2 kJ (approx.)

Carbohydrates

A major class of foods, formed by green plants, and including sugars, starches and celluloses. Together with fats, carbohydrates are the primary source of fuel for the human body.

Cellular Metabolism

This is the process of growth and maintenance, using nutrients, and the removal of waste products within each cell.

Cholesterol

Is a fatty substance and is present in foods obtained from animals. There is no cholesterol in foods obtained from plants. Cholesterol is essential for the body and is actually produced in the body in substantial quantities. The body's production is adequate, so cholesterol need not be eaten.

Diet

The entire range of foods eaten by a particular person or group. To most of us, diet refers to a range of foods that has been purposely limited in order for someone to reduce their weight, but that isn't really accurate. Every person who eats is on a diet; but some people are on weight-reducing diets.

Digestion

The process by which food is changed in the stomach and intestines to a form which the body can use.

Deficiency

A major limitation of something. A dietary deficiency refers to a diet that is severely limited in some important elements.

Energy

Is the force or power that enables the body to carry on life sustaining activities. Energy is supplied by food to the body and is measured in calories or kilojoules.

Enrichment

Means the addition of nutrients that have been removed during processing or refining. Example: When wheat is milled into white flour, B Vitamins are removed, but may be added back by the manufacturer to a specific level governed by Federal Legislation - Health Protection Branch.

Essential

A term used to describe something which is needed by the body and which the body cannot produce. An essential substance must be obtained from the food we eat. Examples of essential substances include some nutrients, some fatty acids and some amino acids.

Fat

Is an important constituent of the diet and is important to health in many ways. Fat is the most concentrated source of food energy. It supplies 9 calories per gram; protein and carbohydrates, the other two sources of food energy, supply 4 calories per gram.

Fortification

Means the addition of nutrients to a food that does not normally contain that nutrient or contains it in a relatively small quantity. Example: milk may be fortified with Vitamin D.

Food Fad

A food habit pattern based on unsupported scientific evidence in the belief that a certain food or a certain combination of foods has unusual health-promoting properties.

Hunger

The urge to eat that pushes a person to seek food, a physical sensation.

Malnutrition

Problems in nutrition caused either by overnutrition or undernutrition.

Minerals

These inorganic substances, including the 8 essential minerals and 6 trace elements are vital to several body functions. Calcium and phosphorus, plentiful in milk and green leafy vegetables, provide most of the structure of bones and teeth. Iron, found in red meats, dark whole grains and green leafy vegetables, affects this oxygen-carrying ability of the blood. The use of iodized table salt prevents goiter, caused by a deficiency of iodine.

Natural Foods

Foods just as they come from field or tree, with nothing added or taken away during or after growing.

Nutrition

The science of how the body uses food. Food is eaten to live, to grow, to keep healthy and well, to get energy for work and play.

Nutritional Status

The state of nutrition of an individual. It concerns the relationship of food consumption to total health. It is the result not only of food intake since birth but of the mother's food intake during pregnancy.

Organic Foods

Foods grown without commercial fertilizers, herbicides, pesticides, and without preservatives or additives.

Proteins

Essential for maintenance of body tissues, they are large molecules made up of amino acids. The latter contain carbon, hydrogen, oxygen, nitrogen and sometimes sulphur. Lean meat, most fish, cheese, nuts, peanut butter, milk (whole or skim), bread and cereals, peas and beans are good sources of protein.

Vitamins

Special chemicals needed in minute amounts by the body to perform many complex chemical reactions. "Natural" and "Synthetic" vitamins are identical.

SOURCES AND FUNCTIONS OF NUTRIENTS IN FOODS

NUTRIENT	FUNCTION	SOURCES
Protein	Building & repairing all types of body tissues. Regulating body processes. Forming antibodies to fight infection.	Animal sources: milk, cheese, eggs, meat, fish, poultry. Plant sources: dried legumes (peas, beans, lentils), cereals, nuts, bread, peanut butter.
Carbohydrate	Supplying energy. Sparing protein. Assisting in utilization of fats.	Starches: breads, cereals, bannock, pastas, potatoes, rice. Fruits & Vegetables: fresh, canned, frozen, dried. Milk, sugars, syrups, jams, honey, molasses.
Fat	Supplying energy. Absorption of vitamins A, D, E, & K. Protecting and insulating body parts. Supplying the essential fatty acids.	Meat & fish, oils, salad dressings, shortenings, margarine, nuts, butter, whole milk, cream, cheese. Muktuk, blubber, lard.
Vitamin A	Promoting normal growth & formation of skeleton & teeth. Maintaining normal vision. Resisting infection by keeping skin & lining layer of body healthy. Ensuring normal reproduction & lactation.	Dark green & yellow vegetables, yellow fruits, egg yolks, liver, butter, cream, whole milk, cheeses, skim or 2% milk with added vitamin A. Wild vegetables, fireweed, lambs quarters, willow leaves, dandelion, whitefish liver.

NUTRIENT	FUNCTION	SOURCES
Vitamin D	Utilizing calcium & phosphorus in the development & maintenance of sound bones and teeth.	Vitamin D fortified milks (fluid, evaporated & powdered) Vitamin D fortified infant formula preparations. Vitamin D fortified margarines. Vitamin supplements or fish liver oils. Sea mammals & fish.
Vitamin E	Protecting body's supplies of Vitamin A. Maintaining health of membranes by being an antioxidant. Participating in blood cell formation.	Vegetable oils, wheat germ, margarine, whole grains, eggs, liver, fruits & vegetables.
Thiamine	Releasing food energy from carbohydrates. Promoting growth. Maintaining food appetite. Promoting normal function of the nervous system.	Pork & pork products, liver, kidney, dried legumes (peas, beans, lentils), potatoes, whole grain or enriched cereals, flours, bread, and pastas. Whitefish, cod, muktuk, duck.
Riboflavin	Normal growth & development. Maintaining good appetite & normal digestion. Helping to maintain healthy skin & eyes. Helping to maintain a normal nervous system. Releasing energy to body cells during metabolism.	Milk & milk products (except butter), cheese, eggs, meat, liver, char, leafy vegetables, enriched cereals & pastas. Whitefish liver, tom cod, duck, ptarmigan.
Niacin	Normal growth & development. Maintaining normal functions of the gastrointestinal tract. Protecting normal function of the nervous system.	Liver, lean meats, fish, poultry, enriched cereals, flours, breads & pastas, tomatoes, peas, potatoes, peanuts & peanut butter, milk, cheese & eggs.

NUTRIENT	FUNCTION	SOURCES
Vitamin K	Normal clotting of blood.	Green & yellow vegetables (synthesized by intestinal bacteria).
Vitamin B-6 (Pyridoxine)	Protein & energy metabolism. Formation of red blood cells.	Meat, liver, whole grain cereals, eggs, potatoes, other vegetables.
B-12	Maintenance of healthy blood.	Liver, kidney, milk, meat.
Folic Acid	Maintenance of healthy blood.	Liver, kidney, mushroom, asparagus, broccoli, lima beans, spinach, lemons, bananas, strawberries, cantaloupe. Wild vegetable greens.
Pantothenic Acid	Energy metabolism.	Liver, kidney, egg yolk, nuts, legumes, (peas, beans).
Vitamin C	Maintaining healthy teeth & gums. Maintaining strong blood vessel walls. Helping to form and strengthen the cementing substance which holds body cells together.	Orange, lemon, grapefruit, lime, tangerine - and their juices; vitaminized apple juice & fruit drinks, tomatoes & their juice; cantaloupe, strawberries, broccoli, cauliflower, brussel sprouts, cabbage (green), white potatoes, turnips, organ meats, wild berries, seaweed, wild vegetables: bistort, fireweed, scurvy grass, violet leaves. Raw fresh, raw frozen, smoked meat & fish.

NUTRIENT	FUNCTION	SOURCE
Calcium	Forming strong bones & teeth & maintaining & repairing the skeleton. Maintaining muscle tone, normal heart beat & healthy nerve function. Aiding normal blood clotting.	Milk (any type), ice cream, cheese, (any type), yogurt, canned salmon & sardines (with bones) broccoli, navy beans (dried), string beans, turnips, carrots, dried apricots, cantaloupe, soft bone ends.
Phosphorus	Forming strong bones & teeth & maintaining & repairing the skeleton. Facilitates absorption & transportation of nutrients. Regulates the release of energy.	Meat, fish, poultry, eggs, nuts, milk, cheese.
Iron	Building hemoglobin in red blood cells to transport oxygen & carbon dioxide. Preventing nutritional anemia.	Liver, red meats, egg yolks, dried beans, peas & lentils, green leafy vegetables, whole grain and enriched cereals, pre-cooked infant cereals, flours, bread & pastas. Seal, walrus, whale, caribou.
Iodine	Proper functioning of the thyroid gland.	Iodized salt. Sea food.
Sodium	Involved in cellular metabolism.	Salt, pickled foods, processed cereals, milk, cheese, bread, salted butter, baking powder, cakes, cookies, bannock.
Potassium	Involved in cellular metabolism.	Meat, fish, potatoes, oranges, bananas, milk, legumes, most fruit & vegetables.

NUTRIENT	FUNCTION	SOURCES
Fluoride	Prevention & control of dental caries. Prevention of osteoporosis (brittle bones).	Drinking water (natural or fluoridated water supplies), sea fish, tea.
Magnesium	Formation of bone. Metabolism of calcium & phosphorus.	Cocoa, nuts, whole grains, spinach, liver, clams, oysters, crabs.
Zinc	Carbohydrate metabolism. Reproductive cycle. Various enzyme systems.	Seafood (especially oysters), meat, liver, eggs, milk, legumes, & whole grain.
Copper) Manganese) Chromium) Molybdenum) Selenium)	Not fully understood	The average Canadian diet should provide the required amount.

A

ESSENTIAL NUTRIENTS

ESSENTIAL NUTRIENTS

There are six essential nutrients, each of which performs a special function in the body.

1. Carbohydrates (CHO)	- furnish heat and energy.
2. Fats (F)	- furnish heat and energy.
3. Proteins (P)	- build and repair tissues.
4. Vitamins	- regulate body processes such as circulation, respiration, digestion and elimination.
5. Minerals	
6. Water (H_2O)	

An essential nutrient must do at least one of three things:

1. Supply heat and energy to the body
2. Build and repair tissues
3. Regulate body processes

CARBOHYDRATES

Carbohydrates are the fuel of life providing the cheapest form of human energy. Carbohydrates are found in one of three forms in food: the sugars, the starches, the cellulose.

Sugars

Sugars are useful for sweetening and flavoring foods and providing quick energy. White sugar is a pure sugar made of two simple sugars -- glucose and fructose. It has no food value other than the energy it provides. Brown sugar has not been as purified as completely as white sugar but contains very little else besides calories.

Other sweeteners include corn syrup, cane syrup, maple syrup, honey, jams, jellies, marmalade and molasses. These contain varying amounts of sugar, flavoring and water but cannot be considered a source of any nutrients with the exception of molasses which provides a minute amount of iron and calcium.

Starches

Starches found in grain cereals, vegetables and fruits are all composed of thousands of small units of simple sugars joined in chemical union.

Cellulose

Cellulose, too, is made of large numbers of simple sugars joined together. However, these units are bound together by links that cannot be broken apart in the human digestive system.

Cellulose found in whole grains, fruit and vegetables provides bulk and gives the intestinal muscles additional material to move along. In this way, cellulose helps prevent constipation. It's ability to hold water adds to this effect.

Function of Carbohydrates

Chief function of carbohydrates is to supply energy for body processes. Carbohydrate foods add flavor to the diet and cereals and breads furnish the body with some protein.

Sources of Carbohydrate

Sugars, cereal grains, legumes (peas, beans, lentils), dried fruit, berries. Processed foods -- noodles, dried non-fat milk powders, jams, jellies, pastries, breads, bannock, cakes, candies.

Fresh fruit and vegetables provide small amounts of carbohydrate, except bananas, dates and potatoes which have more.

Requirements of Carbohydrate

Approximately 40% - 60% of the total calorie intake of an individual should be in carbohydrate form.

FATS

Fats are organic compounds which are broken down into simpler forms for use by the body.

Functions of Fat

Fats are an important nutrient in the human body. These are the functions:

Source of energy:
Fats are the most concentrated source of energy as they yield almost twice as much energy as equal proportions of carbohydrate or protein. Fat stored in the body can be used for energy in times of dietary shortages.

Source of fat soluble vitamins:
Some vitamins are found only in food that contains fat. These are Vitamins A, D, E, K.

Source of essential fatty acids:
A term used in nutrition is the word essential. In referring to nutritional elements, it means that the body must have the element because it cannot synthesize it from any other substance in the body. There are three essential fatty acids that our diet must provide or signs of deficiencies result.

Production of satiety effect:
The satisfying feeling of fullness after a meal and the lasting effect of this feeling is a result of the fat content of the meal. Fats are digested and absorbed into the blood stream more slowly than either carbohydrates or protein, and as a result fat foods delay feelings of hunger for a longer period of time.

Protection:
Fats are known to protect the body in two ways. The deposits of fat under the skin act as non-conductors of heat and help to insulate the body and

prevent rapid loss of heat and the penetration of cold. The organs of the body are supported and cushioned by fat.

The moral value of fat in the diet was graphically illustrated during the world wars when butter was rationed and other fats were in short supply. It gave rise to many complaints about the diet even when no evidence of conditions of malnutrition were present.

Food Sources of Fat:

- vegetable and animal fats
- corn oil, peanut oil, vegetable shortenings, butter, margarine, lard, blubber, muktuk
- nuts - pecans highest, peanuts lowest
- meat, poultry, fish - vary in content (see "Fat content of commonly eaten meats" under Country Food Resources, page 144 in this book)
- egg - in the yolk only
- cheeses - all except skim milk or cottage cheeses
- fruits and vegetables - relatively little

Types of Fat:

Saturated fats:
fats containing saturated fatty acids. These fats are generally hard at room temperature and are derived from animal sources such as meat fats.

Monounsaturated:
fats containing a special chemical configuration. Olive oil is an example of a monounsaturated fat.

Polyunsaturated:
liquid at room temperature and generally derived from vegetables - i.e. corn, cottonseed, soya, sunflower seed oils.

Requirement of Fat:
Fat provides about 35% of the Canadian diet. Requirement of fat varies with the individual and is also based on requirements for carbohydrates and

and protein. Canadian diets generally have too much fat rather than too little.

Fat in the Native Diet

There is a popular misconception of Inuit eating a huge amount of blubber and other animal fats. It astonishes many people to learn the traditional diet contained much less fat than the typical North American diet. In fact consumption of fat by the Inuit population is on the increase.

Alaskan and Canadian studies have disproven misconceptions about the amount of fat in the Inuit diet. In Alaska it was found the average fat consumption to be 70 to 75 g per day and most of that was from imported sources such as butter and lard. Data in the Western Arctic shows fat intake comparable to the Alaskan figures and lower ones - 50 to 60 g per day. In the Eastern Arctic, it was shown that the people ate about half the amount of fat compared to Western diets. It is also significant that the portion of fat derived from fish and sea mammals has more unsaturated fatty acids and may, therefore, be less atherogenetic (causing athersclerosis, etc.) than dairy and domesticated fats.

The fat content of wild meats as compared to domesticated animal meat (beef, pork) reveals in fact why the traditional diet was low in fats. Most native meats reach 25% to 30% protein and have extremely low fat content, only a little more than 1% for moose and caribou and less than 2% for seal meat sources compared to 12% - 45% for commercially sold domestic meat sources.

In effect then, traditional Inuit and Indian meat and fish supplies have 50% to 150% more protein content but only 5% to 10% as much fat as domesticated animals. Muscle fibers in domesticated animals are interspersed with fat giving a marbled appearance and 'tender' quality. Game meat and fish has the fat all localized subcutaneously as 'back fat' in the caribou and 'blubber' in sea mammals, most of which is not used for human consumption.

PROTEIN

Proteins are the building blocks of the body. Every cell in the body is made up of protein and hence it is one of the most abundant components of the body. The major portion of protein is located in the muscle tissue, the remainder is in the blood, other soft tissue, bones and teeth.

Composition of Proteins

Proteins are made up of simple units called amino acids. Amino acids are held together in chain-like structures. Those amino acids which cannot be made by the body are essential ones. These must be provided by proper choice of food.

High Quality Protein

Protein foods which supply all the essential amino acids plus a generous quantity of nonessential amino acids.

Sources: - meat, fish, poultry, milk, eggs, cheese.

Low Quality Protein

These are foods supplying some proteins but lacking in one or more essential amino acids.

Sources: - bannock, bread, spaghetti, macaroni, breakfast cereals, beans, peanuts, peanut butter, soybeans.

Combining Proteins

High nutritional value proteins can be obtained in the diet by combining foods. For example, the cereal proteins in breads, spaghetti, macaroni and breakfast cereals are of low quality because they lack one essential amino acid. The same essential amino acid is plentiful in legumes such as beans, peanuts, and soybeans. So if bread and peanut butter are eaten together, a food of high quality protein, the peanut butter sandwich is obtained.

Other examples of combined protein foods are baked beans and brown bread, macaroni and cheese or cereal and milk.

Functions of Protein

Body-building substance:
Protein is present in every cell and the type of protein determines the characteristic of that cell or tissue. For example, skin has a nard insoluble protein which provides a protective covering. The mineral matter of bones and teeth is imbedded in a framework composed of protein.

Protein is needed for building new tissue and the upkeep and repair of old tissue continuously throughout life. It is, of course, the young for whom the need for new tissue is greatest, but there is a continuing minimal need for the adult also. The hair and nails continue to grow, the outer layer of skin scales off and is replaced. In pregnancy, there is need for formation of new tissue in the developing baby and certain tissues of the mother.

Formation of enzymes, hormones, antibodies. Some of the compounds essential in vital processes in the body are derived from amino acids.

Body regulating substance:

- movement of fluids - protein is one of the factors that contributes to the control of movements of fluid in and out of cells and to and from the blood stream.
- maintenance of normal reaction of tissues - protein helps maintain a normal balance between acid and base substance in the body.

Source of energy:
If carbohydrate and fat content of the diet is insufficient to meet the body's energy needs, protein is used for that purpose.

Classification of Proteins

Complete proteins:

- maintain life and provide for normal growth of the young. Most animal proteins (gelatin is an exception) are complete proteins.

Partially complete proteins:

- maintain life but fail to support normal growth. i.e. wheat, barley, rye proteins.

Incomplete proteins:

- neither maintain life nor support growth. Most vegetable proteins are incomplete.

Requirement of Protein

10% - 15% of one's calories should come from protein foods.

Food Sources

Cheese, eggs, fish, meat, nuts and poultry are the primary sources of protein. Irrespective of cost or tenderness of cut, the protein of meat, fish and poultry is high quality. Cereals rank second, and fruits and vegetables are low protein foods.

Calorie Value of Proteins, Carbohydrates and Fat

The average calorie value of each of the three major nutrients (protein, carbohydrates, and fat) is known as its respective fuel factor.

- 1 g of carbohydrate yields 4 calories
- 1 g of fat yields 9 calories
- 1 g of protein yields 4 calories

VITAMINS

Vitamins are chemical compounds which regulate body processes. "Vital" comes from the Latin word meaning "life". They were named alphabetically, but later Vitamin B was found to be complex, so were named Vitamin B, B_2, etc.

Vitamins are needed in quite tiny amounts compared to the body's larger requirements of protein, fat, and carbohydrates, which are the fuels and building blocks of the body. The vitamins are not themselves fuels or building blocks, but rather regulators of many chemical reactions in the body by which tissues are built or repaired and food energy used. Vitamins differ from minerals in that they are organic substances, many of them quite complex. Minerals are single elements of inorganic substances usually found combined with oxygen.

Most foods contain some vitamins except highly refined foods like sugar and highly milled grains. The distribution of each vitamin varies from one food substance to another. Therefore it is important to be familiar with the best sources of each of the vitamins.

Vitamin A

Description:

Vitamin A was one of the first vitamins discovered. In 1913 Dr. Elmer V. McCollum at the University of Wisconsin reported a strange observation in rats raised on different diets. He declared that something in butter or egg yolk, not found in lard or common vegetable fat, is essential for growth. Without this factor in the diet, the rats did not grow big and healthy and did not develop shiny, healthy fur. He called this substance "A". Cod liver oil was commonly given to children in the past, to supply Vitamin A (as well as Vitamin D) before it was discovered how to make Vitamin A synthetically in purified form.

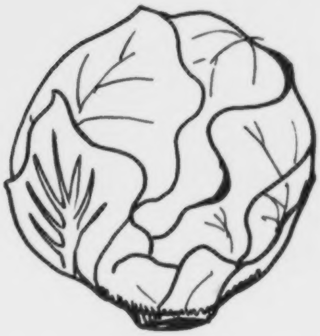
Vitamin A is stored in the fat tissue, chiefly in the liver. High intakes of Vitamin A tablets can result in large stores of it in the liver. Excess intakes of Vitamin A can lead to serious illness and death.

Function:

Vitamin A is essential for healthy skin, eyes, hair, bones and teeth; in general, for the health of all the body surfaces - internal and external. One of its better-understood roles is in vision. Children especially infants, need plenty of foods rich in Vitamin A for normal growth and development.

Sources:
The best animal sources of Vitamin A are liver, butter fat (in butter and whole milk) and egg yolk, as well as the more oily fishes. White fish liver is an excellent source. Other land foods rich in Vitamin A include wild vegetables and plants: lambs quarters, willow leaves, fireweed, sea purslane and mountain sorrel.

Lack of Vitamin A:
Is one of the common causes of night blindness. A severe prolonged deficiency of this vitamin can lead to permanent loss of vision. Margarine is fortified with synthetic Vitamin A to make it equal to butter in that respect. Lard is not. The best vegetable sources are the deep green and deep yellow vegetables, such as broccoli and carrots. Wild vegetables are even better sources than domestic ones.



Vitamin B-1 (Thiamine)

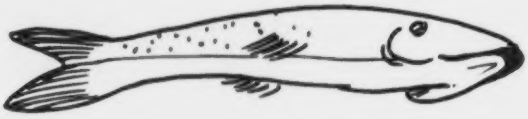
Description:
At first the Vitamin B group was believed to consist of only one vitamin. Later scientists discovered that Vitamin B was really made up of many different vitamins so they called it Vitamin B complex. All B vitamins will dissolve in water, but have little else in common chemically. Dr. Casimir Funk, the scientist who originated the word "vitamin", first extracted one of the vitamins in the B group from food. This was Vitamin B-1 (also called thiamine).

Function in the Body:
Thiamine is distributed widely by the blood throughout all the tissues. Vitamin B-1 plays a vital part in the life processes of the body by assisting the body to release energy from carbohydrates.

Since thiamine takes part in the body's use of carbohydrates, more Vitamin B-1 is needed if a person eats a great deal of carbohydrates. Growing children have higher energy needs and therefore have higher Vitamin B-1 needs than do adults. Since thiamine is not stored in the body, and is readily excreted in the urine, it is essential to include thiamine in the diet every day.

Sources:
Some of the best food sources are whole-grained cereals and enriched bread, liver, pork, fish, lean meat, poultry and milk. Land foods rich in thiamine (B-1) include white fish, tomcod, muktuk and eider duck.

Natural rice, that is without the outer coat removed, is also a good source. In fact, in 1897, a Dutch doctor studied the diet of people in Indonesia and found that they all ate almost nothing except rice - but polished rice which had become popular there. Polished means that the people were removing the outer covering of the rice and throwing it away, thus also throwing away the vitamins in the outer covering. Because of this, many of them were suffering from a disease known as Beriberi due to lack of thiamine. When they learned to cook the rice with the outer coating still on, they increased their dietary intake of thiamine and cured their Beriberi.



Vitamin B-2 (Riboflavin)

Description:

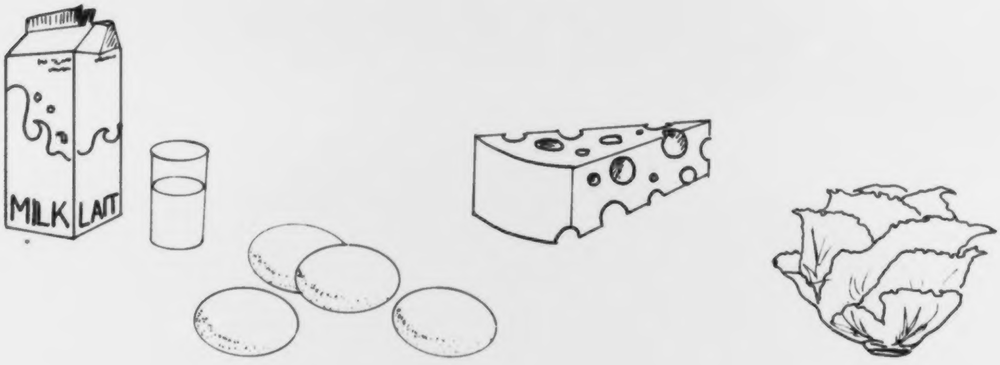
Like Thiamine, riboflavin also has a role as a chemical helper and is involved in some of the different steps in which carbohydrates are used for energy. It also plays a part in the body's use of proteins and fats.

Function in the Body:

Riboflavin is carried by the blood cells in the body. It is found in almost all tissues and thus it is necessary for the function of the body as a whole.

Sources:

Good sources of riboflavin are milk, yogurt, cheese, enriched bread and cereals, liver, kidney, heart, lean meat, eggs and leafy vegetables. Almost all plants make riboflavin which is found particularly in the leaves. Whitefish particularly the liver, tomcod, ptarmigan and eider duck are good sources of riboflavin in the North.



Niacin and Vitamin B-12

Description:

Niacin and Vitamin B-12 are two more members of the Vitamin B complex family. Niacin, one of the simplest of the vitamins, was known as a chemical well before it was found to be a vitamin. It was discovered as a vitamin in the search for a cure for pellagra (a term meaning "rough skin" in Italian). It turned out that pellagra is caused in part by niacin deficiency, and that skin changes are one of its signs. Pellagra was well known in Europe for over 200 years and became wide-spread in the United States in the early part of the present century. By the end of World War 1 the number of people suffering from pellagra had reached 200,000. Its cause was unknown but both bad diet and sanitation were considered possibilities.

Function in the Body:

Niacin works hand in hand with the other B vitamins in various chemical reactions to yield energy for body functions. The body uses niacin itself and can also make niacin out of an amino acid. Other B vitamins help in this conversion process, showing again how the vitamins work together, as well as with other substances in the body to regulate vital processes.

Sources:

Good sources are meat, liver and whole and enriched grain food, and legumes (peanuts, beans, peas). In cereal grains, most of the vitamins and minerals are found in a layer just under the outer husk of the grain and in the germinal portion. If, for the sake of consistency and appearance, these are removed in milling, the grain retains its starch content, which is in the kernel, but loses most of its vitamins and minerals. This is why some flour is enriched (contains add vitamins and iron) in order to replace some of the lost vitamins and minerals, especially iron.

Vitamin B-12

Description:

Vitamin B-12, the most recently discovered vitamin, was identified in 1948. It is one of the most complicated in its chemical structure. It was discovered in the course of a long search for some factor in liver that was known to help treat the serious disease called Pernicious anemia in which there are too few red blood cells. This is due to failure of the body to absorb certain substances, particularly B-12.

Function in the Body:

Vitamin B-12 is essential to the normal health of all cells, particularly in the nervous system, and to the formation of red blood cells. It has an important function in helping build chemicals for the cell nucleus.

Sources:

No animal can make its own B-12, and, unlike any other vitamin, the higher forms of plants cannot make B-12 either. All B-12 is made originally by bacteria in the soil or the intestines of animals. Its best sources for man include the organs of animals where it is stored, such as the liver and kidney. We are also supplied to some extent by our own intestinal microbes. Other good sources are lean meats, eggs, salt water fish and milk.

Folacin and Vitamin B-6

Folacin

Description:

Folic acid (or folacin) is another of the B Vitamins. Its name derives from the Latin word for foliage or leaf (folium) and it is found in leafy green plants.

Function in the Body:

Folic acid helps in the body's use and formation of proteins. It also helps form special genetic materials for the cell. Folic acid is important to cell division, reproduction, growth and the maintenance of tissues.

Folic Acid

Sources:

The best sources of folic acid are leafy green vegetables, yeast and liver and kidneys (the organs where folic acid is stored in animals). Most other meats are a poorer source. This is also true of eggs, root vegetables, and most fruits. Green vegetables and whole-wheat products are good sources.

Folic Acid Deficiency:
Folic Acid is found in a limited number of foods so deficiencies are possible. Nutrition Canada survey indicated deficiencies of folic acid in the Northern population.

Anyone who does not eat fresh green vegetables or liver or kidney regularly could become deficient. The main sign of a deficiency of folic acid is a type of anemia caused by not enough red blood cells.

Pregnant women and women on the contraceptive pill have an increased need for folic acid.

Vitamin B-6

Description:
Vitamin B-6 or pyridoxine has many different roles. It is known to be essential for over 30 different specific chemical reactions in the body.

Function in the Body:
Vitamin B-6 also takes part in many reactions involving amino acids. Amino acids are the building blocks of proteins. B-6 is also involved in the body's use of fats and in the formation of red blood cells.

Vitamin B-6 is also part of the substance that changes glucose((sugar) from the form in which it is stored in the liver and muscle into a form in which it can be used for energy.

Oral Contraceptive Pills:
Increase the need for Vitamin B-6 since the hormones in the pill create physiological conditions in the body similar to pregnancy. A supplement of 50 milligrams of Vitamin B-6 daily eliminates many of the side effects of the contraceptive pill including mental depression.

Sources:
The good food sources of Vitamin B-6 are similar to those of other B vitamins. Some good sources are liver, lean meats and whole grain cereals.

Vitamin C

Description:
Vitamin C, also known as ascorbic acid, is another water-soluble vitamin. It is readily destroyed by oxidation. Only a few animal species cannot make the needed amounts of Vitamin C in their own bodies. These include man, the monkey, and the guinea pig.

The story of how British sailors came to be called "Limeys" is related to Vitamin C. A long time ago when British sailors went on lengthy voyages, the principal foods they took along were cured meats because these could keep well for a considerable time without refrigeration. They did not take along perishable fresh fruits and vegetables. Soon, many sailors developed scurvy (because of the lack of Vitamin C in their diets). But when one ship landed on a tropical island, the men ate lemons and limes found on the island. They also took more with them for the rest of the voyage, and soon the disease cleared up. From then on, British sailors were called "Limeys" because of the limes they traditionally consumed. Finally, in 1795, England passed a regulation that citrus fruits must be provided in all shipboard diets.

Function:
Vitamin C has a widespread role in many tissues. It is interesting to note that the first signs of moderate deficiency of Vitamin C often appear in the skin and gums. Vitamin C is believed to help form collagen. Collagen is a protein which helps form the tissue network of skin, tendon, bone and their supportive structure. Vitamin C also helps maintain the structure of blood vessels.

Source:
The best sources of Vitamin C are fresh fruits and vegetables. Fresh fruits are the very best sources of Vitamin C both because they are rich in it and because the acid they contain helps protect the Vitamin C from being destroyed, as it may be by continued exposure to oxygen. Surprisingly, potatoes are an important source of Vitamin C, not only because they contain much of it, but also because they are eaten in large amounts. However, the Vitamin C can be destroyed in the process of making them into French fries or chips. Land foods such as seaweed and berries provide a rich source of Vitamin C in the North. Leaves of wild vegetables such as bistort, sourdock, scurvy grass, willow leaves and violet leaves are good sources. Raw fresh, raw frozen and smoked meat and fish also provide some Vitamin C.

Vitamin D

Vitamin D is one of the vitamins which is stored in the fat tissue.

Description:
Cod liver oil used to be given to children for its Vitamin D content (as well as its Vitamin A).

Very little Vitamin D occurs naturally in foods. There are certain oily substances found in the skin that, by exposure to sunlight, can be changed by the ultraviolet rays into Vitamin D which is then used by the body. Vitamin D is sometimes called the "sunshine vitamin" because of this. However, civilized man spends much time indoors and in cold weather is heavily clothed outdoors. Thus, he may not get enough sunlight and so may need to get his Vitamin D in the diet. This is particularly true of children because of their growth needs.

Function:
Vitamin D functions mainly in the body's use of minerals, particularly calcium and phosphorus for the growth and repair of hard tissues. It is necessary for the proper growth of the bones and teeth. Lack of Vitamin D

leads to rickets, which used to be a common disease in babies in this country and still occurs in some places where infants do not get enough of this vitamin. Too much Vitamin D is toxic because it is stored in the body.

Sources:
Fish and sea mammals, liver particularly loche liver are good sources of Vitamin D. Enriched milk is a particularly good source of Vitamin D for children.

Vitamin E

Description:
Vitamin E, when it was discovered in 1920, was given the name tocopherol, which comes from two Greek words "tokos", meaning childbirth, and "phero", to bring. This name was chosen because scientists had found the vitamin was needed by animals in order to produce offspring.

Function:
Vitamin E is necessary for normal development and functioning of red blood cells, muscle cells and other tissues. It also protects certain important substances in fatty tissue from abnormal breakdown. A person's Vitamin E requirement appears to vary with the type of fat in the diet.

Sources:
Vitamin E is found in plant oils such as corn oil, cottonseed oil and wheat germ oils. Whole grain cereal and eggs also provide this vitamin.

Vitamin K

Description:
Certain harmless bacteria that are found in the body's intestines can actually manufacture Vitamin K. However, newborn infants are unable to

make this vitamin until they acquire the bacteria in their intestines.

Function:
This vitamin is necessary for normal blood clotting. Newborn infants have little of the blood-clotting factors and, for this reason, doctors sometimes give them extra Vitamin K soon after birth.

Sources:
Ordinarily, bacteria in the intestines make more than enough Vitamin K for most persons but it is also available in foods such as green leafy vegetables.

MINERALS

At least sixteen different minerals -- the essential minerals - are needed for health. Fortunately, only two of these essential minerals, calcium and iron, must be remembered in choosing foods for meals and snacks. Although there is very little fluorine in our foods, a tiny amount added to water or naturally occurring in the water supply is valuable. Iodine is obtained in the use of iodized salts. The remaining twelve essential minerals are commonly distributed in foods.

Calcium

Functions:
There is more calcium in the body than any other mineral and nearly 99% of all calcium is in the bones and teeth.

Many months before birth, a baby's bones begin to form. At first they are made entirely of a rubbery, gristle-like substance called cartilage which contains protein. A short time later in the life of the unborn baby, mineral salts, containing both calcium and phosphorus begin to be deposited in an orderly way in certain parts of the cartilage and bones.

At the time of birth, some of a baby's bones are partly cartilage, partly bone but many of the small bones are entirely cartilage. During the first year of life a baby grows about 10 inches in length or about fifty percent longer. For all this bone growth, a baby needs bone-building foods. Milk which is the mainstay of a baby's meals is an excellent source of calcium, phosphorus and complete proteins.

Except for baby growth, adolescent growth of bones, both in length and width, is the fastest of any age. Each day, those persons between the ages eleven and seventeen need about seventy percent more calcium than when they were seven years old.

Muscular activity is of value to bones both for repairing broken bones and maintaining the strength of bones. During activity, blood containing calcium is carried to the bones which helps broken bones unite more quickly and also maintains the strength of healthy bones.

The skeleton is the storehouse for calcium, some of which is removed or replaced every day. Some calcium is lost from the body daily, so calcium is needed even after growth has stopped. The bone storehouse helps to maintain the critical level of blood calcium.

In the blood, calcium helps:
- to keep the heart beating
- to keep nerves responsive to stimuli
- in the normal clotting of blood after injury
- in the functioning of many enzymes
- each cell to take in food supplies, by its presence in the membrane surrounding the cell.

Sources of Calcium:

Milk and cheese are the best sources. Soft bones in fish such as sardines, or salmon, cabbage, celery, beef add small amounts of calcium to the diet. The traditional practice of chewing on soft bones ends provided an important source of calcium in the Inuit diet.

Absorption of Calcium:

Calcium salts do not dissolve readily in water and hence calcium is absorbed

35

with some difficulty. Vitamin D helps to overcome this and hence Vitamin D enriched milk is very important.

Iron

Functions:

The mineral iron plays a tremendously important role in the body. The billions of red blood cells contain most of the body's supply of iron, although a small amount is a necessary part of every cell in the body and there are stores of iron in the liver. Hemoglobin, the iron-containing compound in the blood has the remarkable ability to carry oxygen and release it to the body for burning energy. In this way, cells obtain the energy that they constantly need. When a person's red blood cells do not contain their normal quotas of hemoglobin, because there is not enough iron available to make it, the result is lack of energy and little stamina.

Iron is lost:

- through rubbing off of cells from the outer layers of skin
- lining cells shed by digestive tract
- menstruation (girls and women)

Iron-deficiency: Anemia

- a condition of the blood, resulting from too little hemoglobin or iron in the blood. People with anemia feel tired, lack energy, are more susceptible to infections (colds, flu, tonsillitis) than are healthy persons.

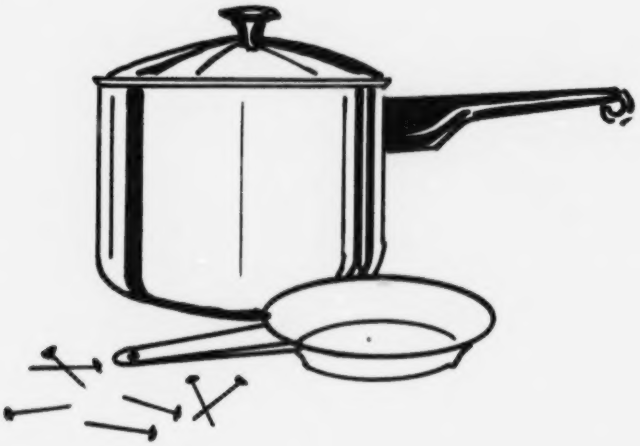
Source of Iron:

Best sources: liver, ready-to-eat cereals that have been fortified with iron, meat, especially seal, whale, caribou, walrus, duck and other meats such as beef, poultry and fish.

Other sources: raisins, eggs, whole grain porridges, enriched white bread and flour, whole wheat or rye bread, vegetables especially legumes and cooked greens, and other fruits.

Absorption of Iron:

Iron in food in the form of iron salts is not readily absorbed into the bloodstream. Foods containing Vitamin C, such as citrus fruits or their juices, vitaminized apple juice and tomato juice may help in the absorption of iron.



Iodine

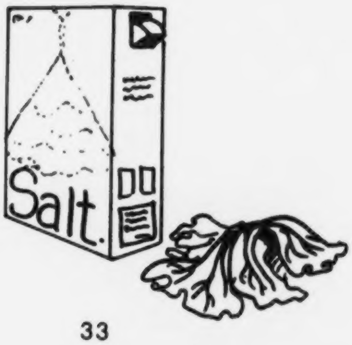
Functions:

Iodine is necessary in order for the thyroid gland to produce a hormone. If quantities of iodine are insufficient, the thyroid gland enlarges resulting in goitre.

The thyroid hormone controls the rate at which body cells do their work. The thyroid hormone contains a high percentage of iodine.

Sources of Iodine:

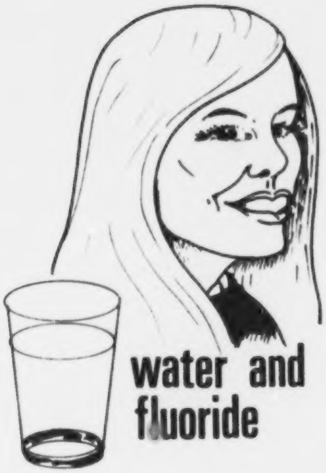
Iodized table salt, some foods grown in iodine-containing soil. Sea salt is not a reliable substitute for iodized salt. Sea foods do provide some iodine.



Fluorine

Functions:
Fluorine makes tooth enamel harder and therefore more resistant to decay. Tooth decay is sharply reduced by fluoridation of water.

Sources:
Fluorine added to water supply. Naturally-occurring fluorine in water. Dental compounds painted on teeth. Small effect of fluoridated toothpastes.



Water

The body is about 66% water. A person who is deprived of water will die in about three days.

Functions of water:
Water is found in all tissues. Six to eight glasses of water each day is the minimum required.

Water:
- helps to regulate temperature
- aids digestion and absorption of food
- helps to get rid of body wastes as in urine
- helps to prevent constipation

Sources:

Water is necessary for life. Liquids such as soup, milk, fruit juices and other beverages contribute to the supply of water, as do fresh fruits and vegetables.

For the normal individual, thirst is the best indication of inadequacy.

B

CANADA'S FOOD GUIDE

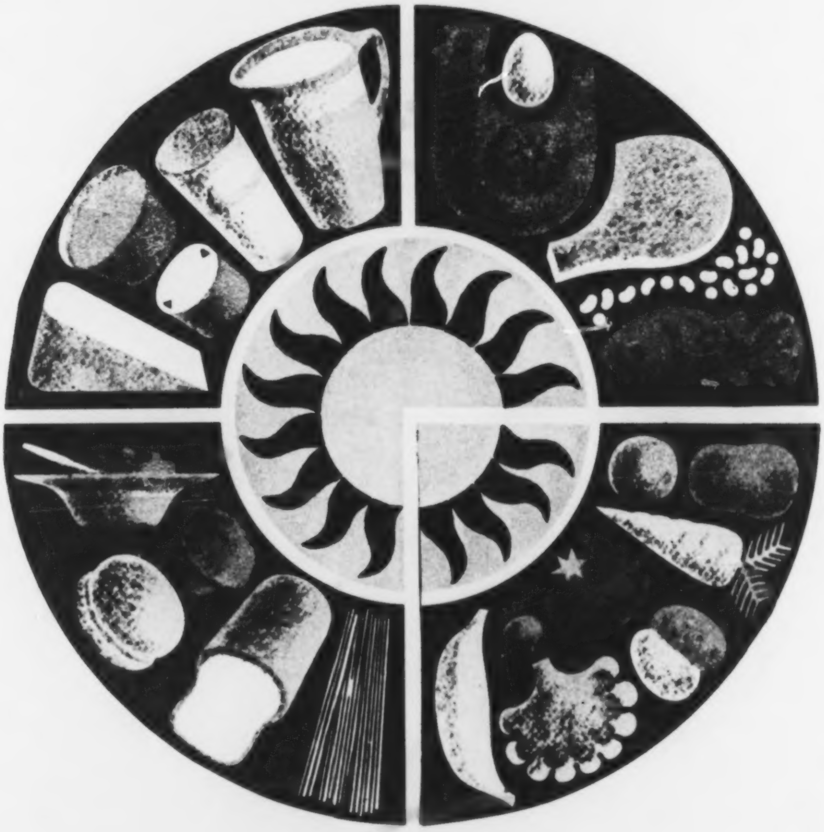
WHAT IS CANADA'S FOOD GUIDE

Canada's Food Guide is a planned daily food pattern that, when followed, will meet the nutrient needs of all healthy Canadians of all ages (except infants).

The Food Guide organizes foods into four groups:

1. Milk and Milk Products;
2. Meat and Alternates;
3. Fruits and Vegetables;
4. Bread and Cereals; and,

recommends the number of servings that should be chosen every day from each group.



NORTHERN FOOD GUIDE

A northern food guide was developed by Medical Services, N.W.T. Region some years ago. The northern food guide had three food groups since it combined the milk and meat groups. At the time it was developed, milk products were not available in the North and people obtained more of their food from the land thus obtaining the calcium, for example, from the milk group from chewing bones. However, many people now buy store foods and do not follow traditional eating habits. If they do not get food from the milk group they may be missing some essential nutrients in their diet. Even those who cannot tolerate milk can eat some milk products.

Medical Services Branch has discontinued using the Northern Food Guide and now recommends everyone follow the Canada Food Guide.

The new edition of Canada's Food Guide was approved and distributed in 1977. Previous to this, Canada's Food Guide had five food groups. The fruit and vegetable group has now been combined so there are four groups.

An excellent resource is Canada's Food Guide Handbook which is available from:

Regional Nutritionist,
Medical Services,
N.W.T. Region,
c/o Zone Director,
Health & Welfare Canada,
Box 520,
Yellowknife, N.W.T.

or :

Consultant Nutrition and Dietetics,
Department of Social Development,
c/o Stanton Yellowknife Hospital,
Yellowknife, N.W.T.

LACTOSE INTOLERANCE: (A Special Consideration)

What is lactose intolerance?

Lactose is a form of sugar in milk. Certain races of people do not have the enzyme to break down this sugar so the body can use it. Many Indian and Inuit cannot tolerate large amounts of milk.

Intolerance simply means a person will get sick if they eat some milk products. Symptoms of lactose intolerance include stomach pains, abdominal bloating, diarrhea, recurrent ear infections, nasal congestion, irritability, fatigue, joint pains, and many other effects.

This condition is of special concern in infants who are bottle-fed and cannot tolerate cow's milk.

How to Use Milk Products:

People who have a lactose intolerance can usually eat fermented dairy products and thus do not have to eliminate milk products entirely.

Fermented dairy products such as yogurt, cottage cheese, buttermilk, sour cream and a wide variety of cheeses will add the necessary calcium and riboflavin to their diet.

This condition should be given special consideration in meal planning. It is not always wise to encourage people to drink milk for their health or because they are pregnant. Other products may have to be substituted.

C

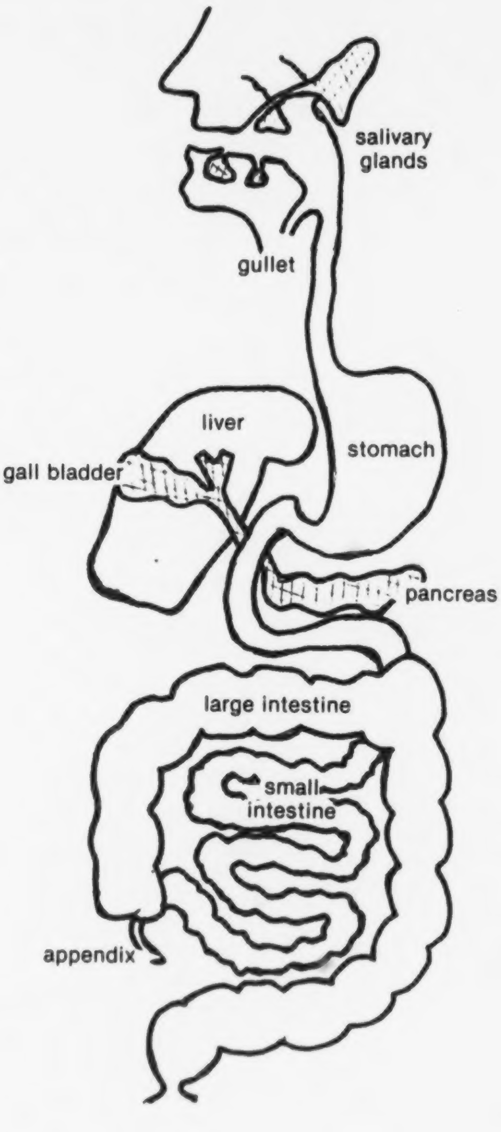
DIGESTION

THE DIGESTIVE SYSTEM

The digestive tract is something like a hollow, flexible hose about thirty feet long, estending from the mouth to the anus. In its different sections, the digestive tract varies considerably in diameter. The stomach, for example is a great deal wider than the rest of the tract.

The muscles in the walls of the tube-like tract contract and relax automatically in an orderly way, except in the mouth and at the lowest end of the tube; movement of both of these may be controlled consciously. In the mouth, food is chopped and crushed with the teeth. The muscles in the cheeks and tongue move the food around and so help the teeth to do their work effectively. The action of the automatic muscles vigorously mixes the food with the digestive juices, presses it against the walls of the flexible tube, and moves it down the tube. Usually, one is not aware of this digestive activity. The nerves that control these muscular movements also work automatically, but strong emotions such as anger, fear, or grief can affect these nerves and, as a consequence, digestion.

Simplified Diagram of the Digestive Tract



In addition to such mechanical work, the digestive canal also performs much chemical work on food. Nearly all of this is due to the action of a number of different enzymes[1] which are able to gradually split the sugar starches, fats, and proteins into the building blocks of which they are composed.

Conversion of Food into Energy:
Unlike plants, human beings are not able to produce food and building materials from very simple substances. The nutrients must be supplied in ready-made form in food. In the human digestive canal, the carbohydrates, fats, and proteins are split into their simpler components. These then enter the blood stream which carries them to the billions of body cells. The bloodstream also transports the minerals and vitamins from food and from oxygen picked up in the lungs. The blood acts as a kind of floating cafeteria for the cells. From nutrients carried by the blood, each cell can select the materials it needs. To be of any value, oxygen, and all these simpler materials derived from food, must enter the cells.

All the cells in the body have to keep working twenty-four hours a day, every day, and this naturally means that they must have a constant supply of energy. Fortunately, there are some stores of food energy in the body, mostly in the form of fat. There is also a small store of glycogen[2]. Both fat and glycogen can be utilized at any time they are needed.

Cell energy comes from the burning or oxidizing of the simpler components of carbohydrates, fats, and proteins which contain what is called 'chemical energy'. Oxidation is the process by which a substance combines with oxygen; oxidation really means burning and, obviously, that releases energy. One might wonder how anything could be burned inside the human body without injury, yet each body cell can do so safely. Each cell contains a large number of different enzymes which act one after the other in rapid succession until the food material is completely oxidized. The enzymes need the help of several of the vitamins and some of the minerals to be able to do this; in the oxidation process, the vitamins and minerals act somewhat like the spark plugs in a gasoline engine.

[1] Enzyme : a substance which promotes a chemical change.
[2] Glycogen : a form of stored energy for use by the brain and muscles.

Energy, then, is not destroyed, but it is changed into other forms. Fats and carbohydrates, when burned completely in the body, end up as carbon dioxide and water. However, proteins are not burned completely by the cells. Proteins are something like the charred sticks of a campfire that has gone out before all the wood has been completely burned; naturally, if one lights the charred sticks again, one will get more heat from them. The proteins, in turn, do release much of their energy, but not all of it. The parts of them that cannot be burned in the body are eliminated in the urine, mostly in the form of a substance called urea.

Kinds of Energy:

Each of the many different kinds of cells in the body uses energy to do its own particular kind of work. Nerve cells change some of the chemical energy from their food into electrical energy which carries messages along nerves all through the body. Voluntary muscle cells contract so that the body can move in various ways; to do this, they change some of their food energy into the energy of movement, kinetic energy. The cells are only moderately efficient and a large fraction of the energy they use is turned into heat; however, this is useful because the inside of the body has to be kept quite warm. A great deal of the energy from food is used solely to keep the cells of internal organs, such as the heart and kidneys, functioning.

D

SPECIAL NUTRIENT NEEDS

DIET IN PREGNANCY

Lifelong good nutrition is a woman's best preparation for pregnancy. It is during the first few weeks of pregnancy (when the woman doesn't even know she is pregnant) that significant development in the baby is taking place. Adequate nutrition is essential then!

Nutrient Needs During Pregnancy

First Two Weeks:
An adequate diet based on Canada's Food Guide is sufficient. The normal amount of food in diet is adequate because the increase in nutritional demands is minimal. Alcohol, over the counter drugs and smoking all affect the developing baby even at this early stage.

Two Weeks to Two Months:
The skeleton and organs are developing at this stage in the baby. A poorly nourished woman without adequate stores of essential nutrients may be depriving her baby of the elements. At this stage a slight increase in the amount of food may be necessary to provide nutrients and energy for growth in the woman's body and the baby's.

Eight Weeks to Term (Nine Months):
Growth and development of the baby is rapid, the mother must increase her nutritional intake to meet the combined requirements of the baby's body and her own.

There is an increased need for:
- extra calories
- protein
- Vitamin A
- B Vitamins: thiamine (B_1), riboflavin (B_2), niacin (B_3), pyridoxine (B_6), folic acid and Vitamin B_{12}.
- Vitamin C
- Vitamin D

- Vitamin E
- Minerals: Calcium, phosphorus, iron, magnesium

**See nutrient charts on pages 6-10 to see what foods supply these nutrients.

The Hazards of Early Pregnancy

Early childbearing is common in the N.W.T. Significant numbers of older teenagers are having second or third babies.

What is the relationship between maternal age and pregnancy outcome? Although statistical comparisons must be used with caution, two U.S. authorities on adolescent pregnancies have discerned some trends.[1]

- Low infant birthweight ratios have been found to be highest for mothers under fifteen and lowest for mothers ages twenty-five to twenty-nine.
- Infant mortality is twice the rate for mothers under fifteen than it is for women aged twenty to thirty-four.
- Very young mothers frequently have such maternal complications as toxemia, labor that is either too early or prolonged, infections after delivery and hemorrhage. Hypertension and anemia are both common.

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[1] Stickle, G. & Ma, P. "Scope of the Problem" "Pregnancy in Adolescents:" Contemporary Ob/Gyn 5:85-91 June 1975

Toxemia is a condition commonly found in women subsisting on inadequate diets. It is characterized by high blood pressure, edema (swelling of tissues), protein in the blood and in severe cases convulsions and coma.

Hypertension is abnormally high blood pressure.

- Stillbirths are more than twice as frequent among mothers under twenty as they are among mothers age twenty to twenty-four.
- The maternal death rate for mothers under fifteen is 46.7 dead mothers for every 100,000 live births in the U.S.A. For mothers twenty to

twenty-four years of age, it is only 9.2 per 100,000 live births.

In addition, a national health survey in the U.S.A. has shown that intelligence is lowest among children of parents who were at either extreme of the reproductive span. (Very young or middle aged).

In short, pregnancies of very young mothers place them in high risk categories, as are the older mother, the malnourished, the drug addict and the ill.

These facts suggest that educators should be providing adolescents with not only a good background knowledge of food and nutrition but providing basic information on the related topics of prenatal nutrition, effects of drug and alcohol on the unborn child and genetic defects.

Adolescents should be motivated to exercise increased responsibility in their sexual behaviour so as to prevent conception at very early ages.

The article entitled "Nutrition and Family Planning" in the resource package emphasises the need for adequate nutrition in conjunction with various birth control methods. Preventing pregnancy is a part of a holistic approach to the topic of the health of the adolescent.

The Pregnant Teenager

The pregnant teenager has exceptional needs to increase her nutrient intake because:

1. She is still growing
2. She is pregnant

The pregnant adolescent must choose her diet carefully to meet the nutritional needs of her own growth as well as the increased demands of pregnancy. She particularly needs extra protein and calcium which are supplied by milk and milk products.

WHAT TO EAT WHEN YOU ARE PREGNANT

Follow Canada's Food Guide and select servings according to its recommendations. Pregnant and nursing women have increased calorie needs and may require the largest number of servings suggested on the Guide.

Milk and Milk Products

Four glasses of milk or four servings of milk products will supply most of the Vitamin D and calcium required as well as a good share of the protein.

If a woman is not in the habit of drinking milk or if she cannot tolerate milk (see lactose intolerance page 40), then other foods must be chosen that supply these nutrients.

In the case of lactose intolerance, other fermented milk products can be substituted. Cheese, cottage cheese, yogurt, buttermilk may be eaten.

Cooked or canned fish with the bones, dried and baked beans, carrots and dried apricots, will all contribute calcium to the diet if a person cannot drink milk.

Some women may prefer to drink skim milk or use skim milk powder in cooking soups, baked products, puddings, etc. Milkshakes with extra powdered skim milk and ice cream will add calcium to the diet as well as furnish extra calories.

Meat and Alternatives

Meat, fish, poultry, eggs, dried beans, peas, lentils, nuts, and seeds all supply protein to the diet. Two servings of meat or alternative daily, eggs once a day and liver once a week should be included in the pregnant woman's diet. These foods supply necessary protein and iron. Liver is an especially good source of iron and essential vitamins. Wild game and sea mammals supply more iron per serving than domestic meats (beef, pork).

Breads and Cereals

Four servings of whole-grain or enriched cereals or bread or bannock should be eaten. They supply B vitamins, protein, iron and calories.

Fruits and Vegetables

Four to five servings of fruit and vegetables, including at least two servings of vegetables. These supply Vitamin A and Vitamin C and bulk in the diet. Citrus fruits (oranges, grapefruit and their juices) are especially important for Vitamin C. Wild berries are a very good source of Vitamin C too. Wild vegetables (see Country Food Resources - page 151) are rich in both Vitamin C and Vitamin A.

Other Foods

Butter, Margarine or Vegetable Oil

Two tbsp. daily (note that lard is not a substitute for these since it does not contain Vitamin A).

Desserts, Beverages, Sweets

Other foods such as desserts should be added in relation to desired weight gain and individual energy requirements.

Supplements

Iron and folic acid supplements are recommended. Calcium and ascorbic acid supplements may be prescribed by the Doctor. A vitamin D supplement may be necessary if the mother does not drink milk.

Additional Instructions for Pregnant Women

- Do not take any vitamin supplements or any other preparation unless recommended by your Doctor.
- Weight gain should occur gradually during the pregnancy. An average gain is 1 kg per month for the first trimester, and 1.5 kg per month for the second and third trimester.
- The pattern of weight gain is of greater importance than the total amount. A sudden sharp increase after about the twentieth week of pregnancy should be reported to the physician immediately.
- Morning nausea of early pregnancy may be relieved by eating crackers, biscuits or graham wafers, without butter and without fluids, before rising.
- Heartburn of late pregnancy is often relieved by eating a number of smaller meals rather than three large ones. Foods which cause discomfort should be avoided, e.g. very rich desserts, gas forming fruits and vegetables.
- Keep regular. To avoid constipation, eat plenty of fresh fruits, vegetables and whole grain breads and cereals.
- Drink plenty of fluids. Tea and coffee may be used as a beverage but not at the expense of milk.
- Severe caloric restriction is potentially harmful to the developing fetus (baby), and to the mother, and it inevitably restricts essential nutrients. Weight reduction regimes should be instituted only after the end of pregnancy. The pregnant adolescent especially cannot tolerate caloric restriction with nutritional demands of pregnancy added to her already high nutrient needs.
- Standardized diets commonly prescribed in prenatal clinics are especially unsuited to the pregnant teenager. Careful diet instruction with necessary supplements may have to be instituted by the physician.
- Salt restricted diets are no longer recommended. Recent research indicates that salt restriction may be harmful. Salt to taste is the general guideline. Note, however, this is still controversial and some Doctors still prescribe salt-restricted diets.

Diets for a Nursing Mother

Recommendations are almost identical for those given for pregnancy except the need for almost all nutrients is grater during breast feeding or lactation. No drugs, especially those sold without prescription should be taken except on the advice of a Doctor.

TRADITIONAL INFANT FEEDING AND CHANGE

At no other period in life is the impact of nutrition so critical for the health and even the life of the individual as in infancy.

Until a few generations ago, all humanity provided for the infant's nutritional needs by breast feeding. This remained true for most northerners as recently as one generation ago. The genuine inability to nurse is extremely rare contrary to popular claims and beliefs. Often it is a matter of hospital routines, uninformed doctors or nurses interfering with the natural process. In almost 100% of women normal enough to carry a baby to term, the breasts are prepared to nurse. All the hormone adjustments take place at birth to stimulate the milk production. In western society it is often the physiological hang-ups and anxieties that interfere.

Inuit and Indian mothers traditionally breastfed their babies - and never by the clock! The satisfaction, stimulation, and pleasure to suckle as often and as soon as the urge came had profound emotional as well as physiological benefits to both mother and baby.

The frequency of nursing and the prolonged period of nursing have another beneficial effect - that of natural child spacing. In Dr. Otto Schaeffer's research he found the interval between two siblings in traditional Inuit families to be about three years apart. However, when he first claimed there was a relationship between prolonged lactation (breast feeding) and natural child spacing, he met with disbelief and skepticism in medical and sociological circles. Since then, (1950's) this relationship has been substantiated. It must be noted that the extensive and long periods of nursing babies and young children (up to five years of age) is quite rare and so the child spacing effect is not the same.

Dr. O. Shaeffer also maintains that bottle or breast feeding is a crucial factor in the high infant mortality rate for the Indian and Inuit population. This was proven by a large scale study of infant feeding patterns and mortality involving some five-and-a-half thousand Indian children.

BREASTFEEDING

The advantages of breast feeding are elaborated in the two newspaper reprints following. Here is a summary of the advantages and the few limitations.

Advantages to the Baby
- provides immune substances that help the baby to resist infection; favors the development of desirable bacteria in the intestinal tract
- provides all the nutrients needed in the right proportion and in forms easily handled by the baby's digestive tract
- freedom from contamination and thus danger of infection
- chances of over-feeding are lessened
- human milk is always fresh, at the right temperature and strength
- baby is unlikely to get diarrhea
- babies are never allergic to mother's milk
- baby has better coloring and is less likely to be overweight
- strong sucking required to obtain breast milk promotes better tooth and jaw development

Advantages to the Mother

- emotional satisfaction
- feeling of security in knowledge that baby is being properly fed
- economy so far as cost is concerned
- speedy return to pre-pregnancy weight
- convenient - no preparation time for formula or bottle-warming
- baby's burps and bowel movements are milder smelling

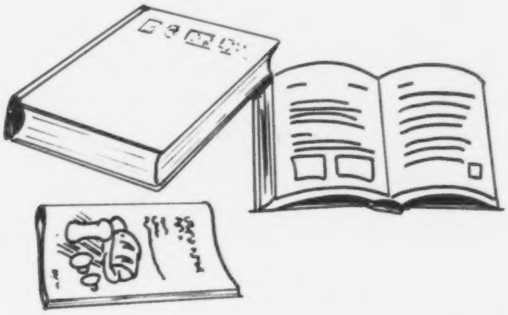
Limitations

- Mother's freedom is limited; however the occasional bottle of "expressed milk" or formula can free the mother to go out. A newborn baby limits freedom whether you're nursing or not.
- It is awkward in public for "shy mothers".
- Only mother can give the night feeding.

Supplementation

- Breast milk provides all the nutrients needed in the correct proportions for the rate of normal growth and development of the infant.
- Vitamin C supplementation is no longer recommended until the infant is four months of age.
- Vitamin D supplementation is still very controversial.

Recommended Reading on Breastfeeding:



The Complete Book of Breastfeeding, by M.S. Eiger, M.D., and Sally Wendkos Olds

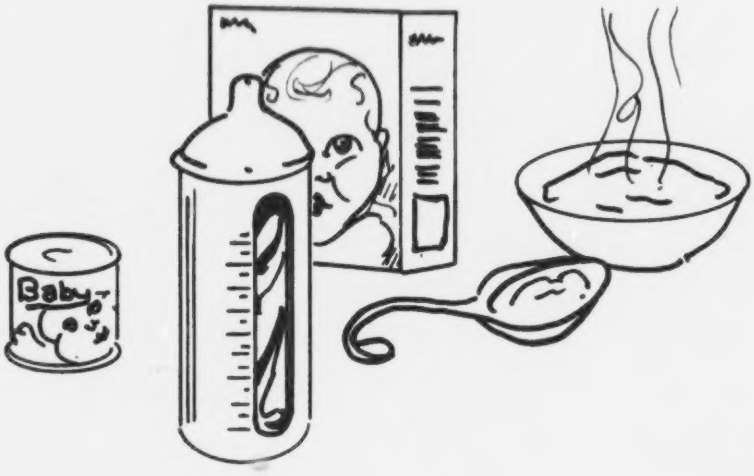
The Womanly Art of Breastfeeding

La Leche League International
Franklin Park, Illinois

- also many pamphlets and research papers on every aspect of breast feeding available from La Leche League. Request an order form.

Nursing Your Baby, by Karen Pryor

Pocket Books - publishers



INFANT FEEDING FORMULA AND SUPPLEMENTATION

If an infant is to be bottle fed, a formula will be required which may be either a home prepared or commercial formula. Skim milk formulas are not recommended, because infants receiving a major percentage of their caloric intake from skim milk will receive exceedingly high intakes of protein and low intakes of fat, and may thereby receive inadequate intakes of essential fatty acids.

There are several different types of formula that are just fine for the baby. Your choice should be made with your Doctor and be based on the kinds of formula sold in the area, the costs of the different types, the ease of making the formula, and whether it suits the infant.

Your baby's formula could be one of two types:

Commercial formula:
Powdered, concentrated, to be mixed with cooled, boiled water.* Never add more powder than the directions suggest. Too concentrated a formula may be harmful to the baby. Boiling water destroys the Vitamin C in the formula. Add the water after it has cooled.

Liquid, concentrated, to be mixed with an equal amount of cooled, boiled water.

Bottled, and ready-to-serve. (Convenient but most costly).

Canned, and ready-to-serve. (Convenient, but more costly).

Milk formula:
Evaporated milk, cooled boiled water and a sugar.**

Whole milk, cooled boiled water and a sugar or corn syrup.**

**Ask your doctor, nutritionist, or public health nurse or call your Home Management Consultant about the amounts of each ingredient to use.

If formula is going to be made with whole milk, then it must be heat-treated (sterilized) before it is fed to the baby. The protein in cow's milk forms a hard curd in the baby's stomach during digestion. This can cause gastrointestinal problems. Sterilizing the formula made with whole milk will make the curd soft and easier to digest. Whole milk formula should be sterilized until the baby is one year old. The formula can be prepared and poured into clean bottles. The nipples should be inverted on the bottles and held in place loosely with the cap and retainer ring. Then place the bottles in a sterilizer or deep kettle with three inches of water. Cover and boil gently for 10 - 15 minutes. Remove from heat and allow to cool. Tighten the caps and store in the refrigerator. Most parents that bottle feed will find it easier and less messy to use canned milk or commercial formula until the baby reaches its first birthday. Evaporated milk and commercial formula are heated to boiling by the manufacturer so they do not need to be boiled again at home.

Two per cent milk is NOT recommended for babies under one year of age. This is because 2% differs from breast milk in several important ways:

- The proportions of protein, fat, and carbohydrate in breast milk are ideally suited to baby's use. Whole cow's milk and formula have proportions more similar to those found in breast milk. But in 2% the fat content is lower, and the percentage of protein and carbohydrate is higher than in breast milk. This high protein content is difficult for a baby's kidneys to handle and may lead to some problems.
- Fatty acids perform a variety of functions in the body. They could be described as essential growth factors. Whole milk does not contain as many essential fatty acids as breast milk does. When the fat is removed from whole milk, it becomes even lower in essential fatty acids.
- Fat-soluble vitamins are removed when milk is skimmed. Although Vitamins A and D are returned to the milk, Vitamins E and K are not.
- SKIM MILK SHOULD NOT be offered until after age two. Skim milk does not contain enough calories for the baby's energy needs and the problems outlined above with 2% milk are even more pronounced in skim milk.

Infant formulas and canned milk have Vitamins C and D added to them so your baby will not need a vitamin drop. However, he/she may need some minerals. Look for added iron in infant formula when your baby is over three months old. If you use a canned milk formula or a whole milk formula then ask your doctor about an iron drop such as Fer-in-Sol. Your baby will need a source of Vitamin C if you are using a whole milk formula.

Unless you prepare formula with fluoridated water, your baby will need a fluoride supplement (such as Karidium) to help make his/her teeth more resistant to tooth decay. It is important to give fluoride daily according to the recommended amount. Ask your doctor about it.

TABLE #1 INFANT FORMULAS

PRODUCT	TYPE OF FORMULA	Vitamins	VITAMIN D	CARBOHYDRATE
Evaporated milk-whole	Regular	No	No	Yes
Evaporated milk-2% **	Regular	No	No	Yes
Fluid milk-whole	Regular	Yes	Yes*	Yes
Fluid milk-2% **	Regular	Yes	Yes*	Yes
Moyenberg Goat Milk	Hypoallergenic	Yes	Yes	Yes
CHO-FREE	Modified CHO	No	No	Yes

* Read labels. Supplementation needed only if brand not fortified.

**A reasonable daily intake of a formula made with 2% milk provides slightly less than the daily recommended intake of Vitamin A unless this vitamin is added. Read the labels.

Supplementation of infant formula with Vitamins and/or Carbohydrates. The selection of a formula will depend on several factors, such as the recommendation of the physician or the hospital, what is best tolerated by the infant, etc. Most commercial formulas are nutritionally complete foods and do not require further supplementation but it is best to read the labels.

The type of milk and/or formula available in each settlement will influence the mother's choice of formula for her baby. If you are demonstrating formula preparation be sure to use the types of formula available in your locality as well as the local prices for comparing costs among different varieties of formula.

Table #2 SUMMARY OF VITAMIN/MINERAL SUPPLEMENTS

MILK	TIMING	SUPPLEMENT
Breast	Birth - 1 year	Vitamin D Fluoride*
Commercial formula	Birth - 3 months	
- concentrated		Fluoride!
- powdered		Fluoride!
- ready-to-use		Fluoride*
Commercial formula with added iron	3 months - 1 year	Fluoride (as above)
Evaporated milk formula	Birth - 1 year	Fluoride! Iron after 3 months
Heat-treated whole milk formula	Birth - 1 year	Vitamin C Fluoride! Iron after 3 months

* Fluoride supplement required regardless of water supply

! If not present in water supply

One major concern about bottle feeding is the tendency to overfeed. An overfed baby will become an overweight baby and this could lead to problems in childhood and adolescence. Mothers are often told how much a baby needs but these amounts should only be guidelines as to how much to put in the bottle. The bottle should be offered to the baby. If he/she takes only part of it, then use this amount as your guide for the amount to offer the next time. Remember that the child's appetite may vary and he/she may want more at some feedings than at others. If the baby empties the bottle, offer more right away and add that to the feeding for the next day. It is important that your baby decides how much to take, not you.

Milk does not have to be warmed at room temperature for feeding, but it should have the chill taken off. As a rule, put enough milk in the bottle so that the baby takes all he/she wants and leaves a little. Then you know he/she has had enough. Mothers, nutritionists, nurses, doctors, etc. can decide what foods to offer or not offer, but baby must be allowed to decide how much to take at any one time.

Don't serve leftover milk to the baby. Use it in baking and cooking or throw it away.

The formula can be made up by different methods. Choose the one that is best for you. Directions for sterilizing bottles with disposable liners are included in the box of liners.

Sterilizing the bottles is necessary to kill any germs that may be present. During the first 3 - 4 months it is very important for all bottles, cups, spoons, etc., and milk to be germ-free so that there is no chance of infection when the child is so young. Be sure to have clean hands and counter tops when making the formula. Sterilize all the bottles, nipples, spoons, cups, can opener, etc. before starting. Place the bottles upside down in a deep pan with a rack. A folded dish cloth in the bottom of the pan will work well if no rack is available. The nipples, and caps can be placed in a jar with a lid that has holes in it and this placed in the pan as well. This prevents the rubber from burning. The remaining equipment can be sterilized in the pan too. Add about three inches of water, cover and boil for 10/15 minutes. Remove and place on a clean surface to dry. Invert the nipples and close the lids. Open them carefully before each feeding time and add the formula, being careful not to touch the nipples with your fingers. No further sterilization is needed. Be sure to pour boiling water over the top of the can before opening.

It is also a good idea to sterilize some water in bottles at the same time, for use when baby gets thirsty between feedings. This plain water can be kept in the refrigerator up to three to four days, but formula must be used within twenty-four hours.

Juice, too, can be offered after six weeks of age. You don't need to buy special baby juice. Instead use the juice (apple is recommended) that the family enjoys and mix it half and half with cooled, boiled water. It is a good idea to strain orange juice to remove the pulp, until the baby is about three months old. Start with one teaspoon at a time and offer it as a snack between feedings. Increase this amount slowly as the child gets older.

Bottle Nursing Problems

A baby's teeth are affected by the fluid and solids that he/she eats. This is especially important if a liquid is offered to put the baby to sleep. If juice, sweetened water or even milk is given in a bottle when an infant is put to bed, then some of that liquid will remain in the back of the baby's mouth after he/she has gone to sleep. This permits the bacteria (that are found naturally in everyone's mouth) to combine with that liquid and produce an acid which will cause tooth decay. This can cause severe decay to the baby teeth and will harm the permanent teeth. It is strongly recommended that babies NOT be put down to sleep with a bottle at all. There is a great danger of aspiration (choking on the fluid), and deaths due to this problem occur all too often.

FOOD FOR THE FIRST YEAR

Germaine
Arnaktauyok

A slide presentation on infant feeding is available from Home Management Consultants in all regions in the Northwest Territories. The slide show consists of 58 slides containing extensive information on breast feeding and bottle feeding.

Lesson plans, teaching objectives, display information, etc., accompanies the script. The information package was developed by Manitoba Department of Health and Social Development, Home Economics Directorate. The resource is recommended for teaching infant feeding to prenatal classes, groups of mothers or to other agencies or child care workers. All or portions of the slide show could be selected depending on the group.

INFANT FEEDING

A standard infant feeding guideline has been developed for use in the Northwest Territories by a committee of health professionals. Guidelines were developed and agreed upon by doctors and nutritionists in Medical Services, Health and Welfare Canada as well as the Consultant in Dietetics and Nutrition, Department of Social Development, Government of the Northwest Territories. The following guidelines were developed to be used by all agencies and professionals dispersing nutrition information.

The Rationale and Recommendations for the Introduction of Solid Foods.
It must be realized that the initiation of solid foods into an infant's diet is an individual thing and that guidelines set forth, based on recent research are just that -- guidelines.

Solid foods are added to the infant's diet to provide nutrients which are no longer supplied in adequate amounts in milk and to provide the infant with an alternate source of these nutrients. Studies suggest that the too early introduction of solid foods predisposes to an increased renal solute load, increased sodium intake and increased weight gain.

When to Add Solids

The recommended age for the introduction of solids is generally no earlier than four to six months. If it is necessary to use a food before four months, then it is recommended that cereal be used and preferably those cereals known to cause the least sensitivities such as rice or barley. The food should be introduced using a small spoon rather than presenting it in a bottle mixed with milk.

Because breast milk, commercial formulas, evaporated milk, etc. all contain Vitamin C, juice, which was originally added to the diet because of its Vitamin C content, is no longer recommended before four months of age. If it is necessary to use juice, then apple juice, preferably unsweetened is recommended as it is known to cause the least sensitivities in the infant. The juice should be diluted on a 1:1 ratio and fed once a day.

Although it does not hurt to give a breast fed infant water, the actual requirement for water is evidenced in the bottle fed infant because of the increased renal solute load. Often the infant's cries are mistaken for hunger, when he requires more water to satisfy his thirst needs.

Summary of Introduction of Solid Foods

Cereal

Birth to 4 months	- cereal is not usually necessary - if given, limit to 2 - 3 tablespoons of prepared rice or barley cereal a day.
4 to 6 months	- infant cereal may be introduced from 4 - 6 months of age - rice or barley cereal should be used - a maximum of 4 - 5 tablespoons of prepared cereal is recommended.

Vegetables

Birth to 4 months - not recommended

4 to 6 months - a few single pureed vegetables may be introduced such as peas, carrots, beans or squash beginning at 4 - 5 months of age.
- 3 to 5 tablespoons daily

Fruits

Birth to 4 months - not recommended

4 to 6 months - a few single pureed fruits may be introduced such as pears, peaches, prunes, apricots, applesauce or banana
- 3 to 5 tablespoons daily

Meats

Birth to 4 months - not recommended

4 to 6 months - suggestions for meats are country meats and organ meats, beef, veal, liver, chicken, pork, lamb and turkey
- meats should be minced or scraped
- process luncheon meats are not recommended
- 3 to 6 tablespoons daily

Other Foods

Whole egg may be introduced at 9 months of age.

Solid foods should be introduced slowly and one at a time so that any sensitivities can be detected and the culprit food identified.

The restriction on the order in which foods should be added has been removed. Foods after the age of four months can be added in any order, although the addition of some types of foods is not recommended until the infant is older.

Preferably home prepared baby food should be used, particular attention being paid to the fat, sugar and salt content of the food being used.

NUTRITION DURING ADOLESCENCE

PHYSIOLOGICAL NEEDS

At no time, except during the first year of infancy, does one grow so much or as quickly as during adolescence. The rapid and extensive growth, not only in the skeleton but in the organ mass, in size of the heart and other organs; also the menarche occurs in girls. All these require extra food elements if proper growth and good health are to be achieved.

Adolescents

The nutrients needed to assure sufficient supplies for adolescent growth are greatest starting at 13 - 15 for boys and 10 - 11 years for girls. This is when the period of growth is greatest for children once they are out of the infant stage. As teenagers, boys have higher nutritional requirements than at any earlier time but less than the recommendations for women during pregnancy. The needs of the adolescent are influenced greatly by their rapid growth. As the bony structure outstrips the musculature in rate of growth, the proverbial awkwardness of the age appears.

Nutritional Requirements

Protein - must be of highest biological value if growth of organs and muscles is to keep pace with the height. 1½ - 2 g per kg is necessary.

Calories - Basal metabolism is high, until puberty is reached, when it suddenly drops. An increase in calories from approximately 2200 - 3000 calories is essential so energy requirements are met and so protein can be used to its best advantage. Then calories should be reduced, or overweight may be a factor.

Minerals - Calcium - is recommended to meet requirements of bone growth.
- Phosphorus - met if milk intake is met.
- Iron - 12 mg necessary, for increase in volume of blood, also for girls when menses begins.

Vitamins - D - for optimum utilization of calcium.
- All vitamins met if diet intake adequate.
- C - important for proper cell structure.
- Riboflavin - intake met by inclusion of adequate amount of milk in diet.

Emphasis is placed on good breakfasts and adequate lunches. If this habit is established in the early years, it is not so difficult to follow even when,during adolescence, a certain amount of independence is a factor.

A large proportion of infants are born to young women who have not completed growth and maturation. Pregnancy can have serious effects on the girl who has had a poor intake of protein, calcium and iron during the preceding years.

The incidence of tuberculosis in adolescence and early adulthood is believed to occur more often in those who have not had an adequate diet, especially protein and calcium.

Nutritional anemia is very often a problem with a teenage girl. She may fill up on foods high in 'empty calories' such as chocolate, concentrated sweets, and these foods replace the meals that are high in vitamins, minerals and protein.

Skin disorders may be aggravated by a diet of rich concentrated foods.

Boys are more accepting of good dietary habits. Boys like to eat and develop physical vigor. Girls want to stay slim, but may choose the wrong foods for staying slim or reducing.

The following table outlines daily food requirements for adolescents.

Table #3 INCLUDE THE FOLLOWING FOODS DAILY

4 cups milk	- Milk provides good quality protein and calcium. (1 cup yogurt, 1 cup cottage cheese, 40 g cheddar cheese = substitution of 1 cup milk).
1 egg	- at least 3 per week
Meat, fish, poultry	- 1 - 2 servings daily
Vegetables	- 3 servings daily
Fruit	- 3 servings daily including a citrus fruit or wild berries
Cereal, bread	- 1 serving cereal, 4 - 6 slices bread, 2 - 3 servings of bannock.*

*Large quantities if needed to meet caloric needs.

Common Dietary Errors

1. Poor breakfast - lack of appetite
2. Poor lunches - perhaps spending lunch money for snacks
3. Self-imposed dieting, caloric restriction but no consideration for protein, minerals and vitamins
4. Irregular eating habits
5. Poor choice of food for snacks

Table #4

SUGGESTIONS FOR PARENTS WHO COUNSEL TEENAGERS ABOUT NUTRITION

1. Give the teenager credit for knowing something.
2. Give him a chance to talk and answer questions.
3. Allow him to accept or reject an idea while talking about it, so he wouldn't have to do it by action.
4. Don't force-feed food ideas, this makes them less responsible.
5. Best teaching is by example, not by talking.
6. Remember that good nutrition is a long term thing.

7. Don't be afraid to express your honest opinions about what is important.
8. There is no perfect food, and there may be value in snacks.
9. Help the teenager aim for acceptance of himself.

PSYCHOLOGICAL NEEDS

The adolescents psychologic characteristics also need to be taken into account when dealing with them.

- Adolescents accept another person's idea better if that person is genuinely interested in him and not in his problem alone, e.g. obesity.
- Adolescents learn more from example alone than from lectures and repetitious advice we may give them.
- They live for the moment, and are unimpressed by warnings of what may happen to them twenty years from now.
- Their desire is to be accepted by others of their own age group.
- Their desire to be independent interferes with any advice reminiscent of school or home.

Nutrition Education

Since food, nutrition and health cut across many areas of learning, these subjects lend themselves to integration into the school program without requiring large and special allocations of time in the already crowded school curriculum. Nutrition is required as a part of health education in some secondary schools, in other schools it is not required at all. In home economics classes, necessarily, it is a part of the course.

Every girl and boy in junior and senior high school should receive some nutrition education. Some adolescents have rejected the food habits and customs of their parents because they don't feel it is the modern way. It is worthwhile to include information on how traditional eating habits and foods of the Indian and Inuit met their nutritional needs. Encourage young people to eat land foods and learn about their culture and food habits.

Experienced teachers and educational authorities recognize that nutrition education must be approached differently for the various age levels. Programs in both elementary and secondary schools have a good potential for promoting better food habits, if geared appropriately to the age groups.

In the elementary grades nutrition subject matter is easily integrated into English composition, mathematics and even art classes where colorful educational posters can be made. Activities such as observations of snack choices made by children, animal feeding demonstrations and plant growing projects have been used as the basis for nutrition teaching. Cooperation of parents is essential if the information gained at school is to be put into action in the home.

Well planned meetings can show parents food sources of nutrients, conservative methods of preparation used for school lunches and favorable cost comparisons.

The approach to the teenager must be quite different from that used in the lower grades. At this age youth has begun to assert a certain amount of independence and to throw off parental and other authority. A boy is concerned about his physique and how manly he will be; a girl about her personality and figure.

SOME CURRENT NUTRITION FACTS FOR ADOLESCENTS

A person can be well nourished and still not be properly fit, but can never be physically fit without being well nourished. There is not single food that will assure good nutrition.

The athlete and the heavy labourer have no greater protein needs than do less active people, but they have greater caloric needs.

Acne was very uncommon amongst the Inuit population eating only traditional foods. Dr. Otto Schaeffer, Medical Services, Health and Welfare Canada attributes the upsurge of acne amongst Inuit youth to the change to a diet high in carbohydrates. People with acne react individually to different foods, and soon learn whether or not a particular food aggravates the condition.

The general condemnation of nuts, fried foods and chocolate is not valid except as an individual idiosyncrasy.

There is no indication that milk contains a hormone causing acne.

Because of the lack of research into the nutritional status and dietary patterns of Canadian vegetarians, guidelines for choosing foods are limited to the following:

- The Daily Nutrient Intakes Recommended for Moderately Active Canadians apply to vegetarians with the additional recommendation of an increase in protein. The exact increase is not specified.
- The plant proteins of highest quality are dried legumes (such as soybeans and peas) and nuts (such as peanuts and cashews). Cereals, breads and vegetables are other sources of plant protein. These proteins are not as high in quality as animal protein because one or more of the essential amino acids are in low concentration. To make up for these deficiencies, combinations of these protein sources (which together will supply all the essential amino acids) should be eaten in fairly generous servings. It is important that all the essential amino acids be consumed at one time, instead of peanuts as the only protein source at lunch and beans as the only protein source at dinner, for example.
- Some excellent combinations of proteins are:
  - Cereals and milk
  - Bread and Cheese
  - Rice and Dried Peas
  - Beans and Bread
  - Peanut Butter and Bread
  - Macaroni and Cheese
  - Corn and Dried Peas
- Strict vegetarians whose diets are totally lacking in eggs, milk and milk products must select and cook foods very carefully to assure adequate amounts of calcium, protein and riboflavin in their daily menus. They are likely to encounter a deficiency in Vitamin B-12.

- Obese teenagers are usually less physically active than normal weight adolescents, particularly the girls.

- Increasing the physical activity of obese teenagers does not increase their food intake to the same extent as it does the non-obese.

Many obese teenagers eat less than the average non-obese teenagers of the same sex.

Diets based on smaller, more frequent meals seem more successful with some teenagers than three meals a day without snacks.

Special programs in public school systems for obese girls and boys are showing long term success, especially when started in elementary grades and no later than junior high. They include:

1. Stepped-up physical activity in special physical education classes and directions for weekends and holidays.
2. Nutrition education re: choice of foods high in nutrients and lower in calories. Special diets are not necessary.
3. Psychological support ranging from individual counselling to advice on grooming and poise.

Obese teenagers show an obsessive concern with their obesity and have strong feelings of social rejection. As a result, they often show a lack of self-assertiveness and initiative compared to non-obese.

Obese children tend to become obese adults who find weight reduction difficult. Obesity runs in families, but exact proportionate influences of genetics and environment are not known. Regardless of genetic influences, the principle that intake of calories (in food) must be less that output of calories (in energy), in order to lose weight still applies. However, metabolic predisposition to obesity may make it more difficult for some people to lose or control weight.

An effective reducing plan must involve a significant and consistent change in dietary habits.

Most people show a lack of understanding and knowledge of the complexity of obesity as a medical problem, and prefer to think that only self-control will correct it.

NUTRITION FOR THE ELDERLY

Food Habits of Older People

Food habits of older people do not always fall in line with their food needs. This is particularly true in the North where an immense change in lifestyle during the lifetime of the "over-sixty" has also changed the food habits and even the type of food available to them, The great changes in the social situation they find themselves in, the limited income, limited cooking and refrigeration facilities, the marketing difficulties, the unfamiliarity of store foods and sometimes unavailable land foods are all very real problems of the elderly in the North.

It is easiest for elderly people to continue to follow their traditional eating patterns if the food is available and they have access to it. Too often, older people resort to living on tea and bannock which leads to malnutrition and rapid aging. Nutrients missing from the diets of older people are generally those supplied by fruits, vegetables, and milk. Since these foods were not a part of the traditional diet with the exception of some wild berries and greens, they have not learned to include them in their diet.

It has been repeatedly demonstrated that older people can adjust to circumstances, learn new skills, and adopt new food habits.

When traditional food practices are not being followed and when land food is not available, people may have to learn to include some new foods such as milk products, fruit and vegetables.

There are many ways to help the elderly. These are some of the considerations related to food and nutrition.

Caloric Needs

As age advances there is a progressive decrease in caloric need as well as physical activity; thus the caloric need is some 22% lower at 65 than at 25 years of age. For example, a woman of 65 weighing 60 kg may need only 1800 calories whereas she needed 2300 or more at 25, when she was more active. If she does not conform to her needs, she will store the excess as fat -- so common in older people, particularly women.

The food sources of these reduced calories must be chosen with care to include all essential factors and in higher proportion than in former years because the total food intake is less. There is an obvious need for foods which carry a full quota of proteins, minerals and vitamins.

Reduction of total calories involves a most difficult task of alteration of food habits. For the majority of persons, habits are perhaps one of the greatest obstacles in the path of an optimal diet. The longer habits are continued, the more fixed they become. The food habits of older people are apt to be so fixed that it is difficult to change them unless the way is made easy.

Surplus calories are not the only reason for curtailing the carbohydrates and the fats in the diets of older people. Some of them seem to have a reduced capacity for metabolizing sugars, and this may result in a fluctuating blood sugar level. When this is true, fewer sweet foods are advisable. Starchy food in moderation such as potatoes, cereals, and bread are better substitutes to meet the caloric need.

Fats are the most concentrated source of calories and often the invisible part of common foods. For those who eat out, food fried in deep fat is apt to be popular since fat gives flavor to foods and satisfies the appetite, but too much fat may result in digestive upsets, indigestion or discomfort for some people. The most serious problem for the middle aged and past middle aged group concerns the type and amount of fat in the diet and its relation to the blood cholesterol level and to the incidence of atherosclerosis (hardening and thickening of blood vessel walls).

Quite another problem exists for the really elderly, or the disabled and shut-in who may not get enough food to meet his caloric or other nutritional requirements. If he lives alone or has poor cooking facilities, there is little incentive or opportunity to market and cook for himself. In such cases home care programs such as meals-on-wheels in one answer.

Protein Needs

Apparently protein needs are not reduced appreciably with age and yet older people eat less protein than when they were younger. This is most likely to happen when marketing is difficult, cooking facilities are poor or the money for food is limited. It can also happen among those of better economic status when denture troubles, lack of appetite or too little energy prevents the preparation of the eating of meals of meats or other protein foods.

Milk protein deficiencies may be manifested by a sense of habitual fatigue, slow healing wounds and lowered resistance. Real protein starvation for an extended period is rare but, if it occurs, may result in wasting and edema.

Some good quality protein is essential at each meal regardless of age. The dietary standards of both Canada and the U.S. suggests no lowering of protein for any age group. Thus, the proportion of protein making up the total calories is really increased.

Fats

The latest research indicates there is a relationship between heart disease and the type and amount of fat eaten by an individual. Fats are also the cause of indigestion in the elderly. Fats used should be vegetable fats preferably in the oil form.

Mineral Needs

The calcium needs of older people seem to be appreciably greater than those of younger adults. Inadequate calcium intake along with some glandular disturbance may cause the loss of calcium from the bones which results in fragile bones, so frequently responsible for fractures. Calcium absorption may also be impaired in the elderly person.

Needs for the other minerals is apparently the same as for all adults.

Vitamin Needs

Unfortunately, little is known regarding the vitamin requirements of older people and whether there is change with age or any association with chronic disease. However, there is no evidence that vitamin requirements are reduced with advancing years, and it is safe to assume that older people need all the vitamins that they did in earlier years. If there has been a marginal supply of any of the vitamins in the diet for many years, then a reduction in total food may be sufficient to precipitate minor nutritional deficiencies.

Planning Meals for Older People

The planning of food to meet the needs of the older age group presents many problems, which are varied as the circumstances in which such people live. They may be living alone, with one or two older people, and marketing and preparing the meals for themselves; they may be cared for by a practical nurse or housekeeper. Whoever is responsible for planning and preparing food should be aware of the personal likes and dislikes and special needs of the elderly person.

Table #5 PRACTICAL WAYS TO ENCOURAGE A NUTRITIOUS DIET

Encourage the elderly to:

- Select a variety of foods from Canada's Food Guide.
- Consume small servings frequently. Because small portions are preferred, snacks must be provided as part of the daily intake.
- Eat whole grain breads and cereals, dried fruit and bran to increase the fibre content of the diet. Cooked cereals, meat loaf, muffins, etc. are suitable foods to which bran or wheat germ may be added in order to increase fibre in the diet.
- Take a Vitamin D supplement since very little sunshine is available during the winter months.
- Eat milk products or drink milk daily and eat fruits and vegetables daily. Nourishing soups, milk puddings, milk drinks (egg-nog, milkshake) and citrus fruit juices will add these necessary food groups to the diet.
- If dental health is a problem, puree foods using a sieve, grater or blender.

Emotional and Mental Health

Closely associated with geriatric nutrition is the mental health status of the individual. Some patients may refuse to eat the prescribed diet. Anyone working with geriatric patients must be aware of this problem.

Social isolation leads to mental and physical deterioration. The deprivation felt when support from family, friends or community is not available often leads to apathy, depression and impairment of appetite.

The aged must, in order to minimize the incidence of diseases, follow the same rules of hygiene that are recommended for younger people. This includes proper nutrition and adequate sleep and exercise.

Factors other than poor diet can cause nutritional deficiencies in the aged. There may be hidden emotional factors that disturb digestion. Grief for loved ones is commonly observed, as well as a feeling of insecurity and despondency. To be well adjusted, the aged person needs some interest and activity -- both mental and physical plus a feeling of usefulness and being wanted.

SUMMARY OF NUTRITION FOR THE ELDERLY

Role of Food

1. To conserve the health of the individual
2. To delay the onset of chronic degenerative disease, e.g. heart, cancer, hardening of the arteries, cerebral hemorrhage.

Calories

Studies show restriction of calories the most important single factor in longevity. Malnutrition associated with under or overweight is frequently observed in older persons.

The tendency to overweight is due to:

1. A decline in metabolism 10 - 15% after 50 years.
2. Body diminishes in height.
3. Slackening of physical activity.

4. With the loss of teeth there is a tendency to eat soft bland food, hence high calories.

When weight is gained with an over intake of calories, obesity is caused which accelerates the degenerative process. Average intake should be: in women 1500 calories and in men 2000 calories. There should be gradual weight loss with the advancing years.

Carbohydrates

Elderly people have a reduced capacity to maintain a stable blood sugar level. Sugar and sweets should be restricted to prevent a load on the sugar mechanism. Starchy foods burn slower than do sugar foods and often contain B vitamins, iron, etc. and are, therefore, a better alternative.

Protein

Too little protein intake is often found in the aged. Clinical protein deficiencies are also found which contribute to swelling of tissue, itching of the skin, eczema, fatigue and slow healing of wounds. A question arises as to whether poor diet or a reduced ability to utilize nutrients is the villain.

Minerals

Calcium and iron are the most important.

1. The fragility of bones and capillaries due to low calcium and Vitamin A.
2. Nutritional anemia -- due to a lack of protein, B vitamins. Changes in the stomach have an effect on iron assimilation.
3. Increase of calcium and iron.

Vitamin A and Calcium make the difference between an adequate diet and one giving longevity. Good niacin intake seems to prevent the psychosis of senility. Vitamin A is important for dark adaptation in the eyes.

Water

1. Because of decreased kidney function increased water eases burden.
2. Controls constipation.

Diet

1. Well balanced and protective foods.
2. Minor modifications might be due to:
   - (a) poor dentures,
   - (b) lack of appetite,
   - (c) inadequate cooking facilities,
   - (d) other physical factors such as a lack of familiar foods and lack of money to purchase food.

Protective Foods

Meat, fowl, fish, eggs, milk, fruits, vegetables, whole grain breads, cereals.

Milk

1. Chief source of calcium
2. Good source of protein
3. Good source of riboflavin (3 glasses or more daily)

Rich sauces, gravies, pies, pastries, cakes, etc. are empty calories.

Problems

1. When senescent people are set in their ways
2. Radical changes are not welcome
3. Many have superstitions
4. Because of a large amount of free time they have a lot of time to think of food.

Mental Health

1. A patient refusing to eat a diet may be asking for attention
2. The aged sometimes find it hard to accept being old
3. Emotions rather than intake cause deficiencies e.g. grief for loved ones
4. Insecurity and despondency may cause a lack of the will to live.

SECTION II

FITNESS, LIFESTYLE AND NUTRITION

FITNESS IS FOR EVERYONE

A healthy body is our most valuable resource, yet we often neglect the need for exercise and activity.

Physical Fitness

Physical fitness is a quality of life. It is the condition that helps a person to look and feel well, to carry out daily duties and responsibilities successfully, and yet have enough physical reserves to enjoy social, civic, cultural, and recreational interests. In addition, physical fitness enables us to meet unusual or emergency demands.

There are two "mainstreams" of physical fitness: organic fitness or basic health, and dynamic fitness.

Organic Fitness

The foundation of fitness is good organic health -- a body free of disease or infirmity and well nourished. This may mean an adjustment by the individual to certain physical conditions that cannot be reversed by medical or dental care -- wearing properly fitted eyeglasses and dentures,or using a hearing aid when prescribed.

Dynamic Fitness

A person may be free of disease but not fully fit. Dynamic fitness involves the ability to move vigorously, to do, to live energetically. This dynamic quality has several components: efficiency of heart and lungs, muscular strength and endurance, balance, flexibility, coordination and agility.

Keeping fit equals good food plus exercise, rest and sleep, medical and dental care.

Food

Food you choose plus good health habits makes the best total you.

Exercise

Helps body develop good circulation, muscle tone and general good fitness. Very important during the years of growth and also sets pattern for years to come.

Rest and Sleep

Muscles and brain work most efficiently when well rested. Rest periods are necessary to dispose of waste products and replenish their supply of energy. Body is not dependent upon a supply of food for immediate energy. Liver is one storehouse and body fat is another from which to draw nutrients for energy.

Medical and Dental Care

Regular visits to the doctor and dentist are important. Your doctor can advise you of any health problems while the dentist can check the health of your teeth and gums and fill any cavities.

Change of Lifestyle

As the lifestyle of people in the North change from a traditionally strenuous way of life involving plenty of physical activity to the sedentary way of life of an industrial society, people become less fit, obesity and overweight becomes more widespread and many lifestyle diseases previously unknown to the northern population appear.

Learn More About Fitness

The following two publications included in the resource package are an excellent source of material on fitness and health. You can order extra copies too!

"Fitness, Lifestyle and Preventative Health Care", from:

Health Care Plan,
Department of Social Development,
Government of the N.W.T.,
Yellowknife, N.W.T.

"Health and Fitness", from:

Health and Welfare Canada,
Fitness and Amateur Sports Branch,
Journal Towers,
315 Laurier Avenue,
Ottawa, Ontario.

Fitness and Nutrition

You can't be fit without eating the foods your body requires to keep healthy and well. A nutritious diet is important to give you pep and energy and keep your body in top physical condition. Learn to follow Canada's Food Guide and select the foods you require for a healthy, fit body.

The following terms and concepts are important in understanding the relationship between physical fitness and nutrition.

Basal Matabolic Rate (BMR)

This term simply means the amount of energy required to maintain all your body functions -- breathing, heart beating, digesting, etc. It is the amount of energy your body requires at rest when no extra energy for physical activity is required. B.M.R. varies with your age, sex and body size, and your physical state of health and fitness.

What is a calorie?

A calorie is a measure of energy expressed as heat energy. It is the amount of energy required to raise 1 kilogram of water 1° Celsius.

In simple language, if you ate a level teaspoon of butter you would have consumed enough calories to bring a quart of water at room temperature to a boil!

All food contains calories, many foods are concentrated forms of energy. Nearly all foods are a mixture of carbohydrates, proteins, fats, minerals, vitamins, water and indigestible roughage. In the pure form, each of these has different calorie content. Fats are high-calorie foods. Proteins are second, then carbohydrates. In the metric system a new term, the kilojoule, will replace the term calorie for scientific measurement of food energy.

Energy Balance

In order to maintain your weight, the amount of food energy you take into your body through eating must equal the amount of energy you expend through exercise and maintaining body functions (BMR: breathing, heart beat, digestion).

Food energy is measured in calories. Too many calories results in a weight gain. Too few calories results in a weight loss.

Age and Growth Rate

During periods of rapid growth (the first five years of life, adolescence) energy requirements are higher because BMR is higher. BMR rates level off after puberty is reached and then decline into old age.

Sex

Women usually have a lower BMR than men and so their energy requirements are less.

Pregnancy and Lactation

Energy requirements are higher during this stage of life because of the increase in both size of the body and respiratory rate.

The production of milk requires extra energy -- about 1,000 calories extra per day to produce 30 mL of milk.

Climate

The BMR rate rises in response to colder climates. The increased energy is needed to maintain body temperatures. Calorie intake must be increased by 5% if work takes place in temperatures below 14° C. To this must be added 2% to 5% to account for energy expenditure because of the weight of clothing and footwear worn in cold climates. Differences in BMR are evident in some races of people. It has been noted that Eskimo people have a higher BMR.

Body Type

A person with more muscle mass needs more fuel (energy) than a flabby unfit individual.

Activity

The amount of energy expended in physical activity or for the performance of work is the largest factor to consider in energy requirement. The more rigorous the activity and the longer the activity is performed, the more calories the individual expends.

The total energy requirement of an individual is the number of calories necessary to replace daily basal metabolic loss, plus loss from exercise and other activities.

Developing your fitness through good eating habits and exercise is more important than concerning yourself with how much you weigh. It is important to understand the relationship between food intake and physical output known as energy balance, to prevent obesity and weight problems.

LIFESTYLE AND NUTRITION RELATED DISEASES

Can eating certain foods cause us to run a risk of developing some diseases? The startling answer is yes! Careless habits not only can result in malnutrition but in serious diseases.

The dramatic changes in lifestyle over the past fifty years of the Inuit and Indian population and more specifically the change in eating habits provides evidence for this relationship of diet and health.

In the article "When the Eskimo Comes to Town" published in Nutrition Today (1971), Dr. Otto Schaeffer discusses a number of lifestyle diseases related to the change in nutritional habits -- diabetes, atherosclerosis, obesity, acne and gallbladder diseases are mentioned.

Other lifestyle-nutrition related diseases that appear amongst the native populations of the north include dental caries, iron deficiency, anemia, Vitamin C deficiencies, alcoholism and infant failure to thrive. Some of the factors that cause these diseases, symptoms and suggested diet changes and solutions are included in this section.

"WHEN THE ESKIMO COMES TO TOWN"

The diet of all Eskimos in earlier times consisted almost exclusively of game and fish, with protein leading by far all other nutrients and providing most of the calories. The inland people depended largely on game such as caribou, while the coastal Eskimos relied on sea mammal. They both had plenty of fowl, and consumed more fish than is generally realized. Depending on local resources, muskox, polar bear, and a number of smaller mammals such as rabbits and foxes, and a multitude of birds were hunted and eaten. Vegetables such as berries, roots and some leaf greens and seaweeds were enjoyed more for variety and seasoning effect. It was fish -- frozen, dried, or fresh -- and meat that supplied their indispensable needs for vitamins and minerals and calories at all seasons.

The people received only on occasion, small amounts of readily absorbable carbohydrate available in berries. Until, that is, trading and trapping supplied money with which to buy larger quantities of foods such as flour and small amounts of sugar at the trading post. These additions to the diet of the Eskimo occurred only 20 or 40 years ago. Eskimos were happy people who survived for thousands of years on a diet rich in protein, and lower in fats compared to southern diets.

Profound changes in way of life, and hence nutrition came to the Canadian Arctic with the arrival of the airplane and the building of a string of military and civilian airports across the Canadian Arctic in the mid-1950's. Like a giant magnet, these new settlements of the whiteman attracted Eskimos in family groups who abandoned their nomadic life for the jobs and new houses and schools at the bases and trading posts.

Imagine a summer in the 1950's. An Eskimo family is living on the shores of Davis Strait in a sealskin tent. The husband and oldest son are often away weeks at a time hunting seal or walrus, fish or polar bear. Or they are off on a trip over the mountains of the Cumberland Peninsula to the trading post, to trade for ammunition and staples, for flour and a little sugar and tea.

All day long, the wife is busy scraping skins or softening them by chewing for the manufacture of boots. Or she is sewing fur clothing, tent covers of skins, or kayak covers. Between the tides, she must collect seaweed and clams, and perhaps char. She may prepare one warm meal a day, normally seal meat.

Now it is the mid-1960's. Our family has moved to the construction site of a defence installation and airstrip. The husband and son have found work there. They eat three meals a day in the cafeteria. The richness of those meals shows in their bulging paunches. They live in a shack which they constructed themselved but later they will move into a three-bedroom house with oil, heat and electricity, built with a hefty bit of government help.

Government sponsored stores, or those of the Hudson's Bay Company sell them clothes and food. The women while away their idle hours chewing chocolates instead of animal skins, attending movie shows, and drinking soft drinks. There is little else for them to do. They no longer need to sew and make clothes or scrounge for food. The chewing of meat -- even more so of bones - which used to be a valuable source of minerals, particularly for the ever pregnant or lactating mother, has become painful or impossible, due to the Eskimo's rapidly rotting teeth.

Of course, not all Eskimo families have been subject to such changes of activity, housing, and above all, nutrition, but it is a fact of life for most.

In a study conducted on Holman Island, Cumberland Sound (to represent an area of hunting people who still live off the land) and Frobisher Bay and Coppermine (to represent town dwellers), the results showed that protein consumption varies drastically from 318 grams amongst the hunters compared to just over 100 grams in town Eskimos. Sugar consumption has increased by four times over the past eight years.

The following are brief descriptions of some new things we are observing in Eskimos:

Growth Acceleration

The Eskimos are exhibiting growth acceleration to a significant degree. Also, they are arriving at puberty at a much earlier age than ever before. This, in our opinion, is directly related to the increased consumption of sugar without increased protein. Traditionally short, stocky Eskimo boys are becoming taller and thinner. This is also true of Japanese school children whose height gain after World War II could be attributed mainly to greater growth in the legs. We have noticed the two-year advancement of growth spurt at the beginning of puberty, particularly in girls.

"Better nutrition" is commonly accepted as the cause of increased growth rate. What is generally meant is that the diet contains more high quality protein. But this explanation does not hold true for Eskimos, whose protein intake is declining with urbanization (moving into settlements). It is the increasing consumption of sugar that is suspected of being related to increase in growth rate. Indeed one must wonder just how beneficial or healthy this is since early puberty and rapid growth are so closely linked to diabetes (mellitus), atherosclerosis and obesity.

Diabetes Mellitus

Diabetes still is not prevalent among Eskimos. But evidence suggests that this happy condition is changing. Recent reports from Alaska and Greenland state that there are three times as many cases of diabetes among the native people as there were ten years ago.

Atherosclerosis

We have found remarkable differences in the incidence of atherosclerosis of leg arteries in Canadian Eskimos. The incidence was greater in Eskimo men aged 40 - 69 years who have lived for more than 10 years in settlements in the Western Arctic or along the DEW line than in men who remained in remote nomadic groups.

Blood lipids and obesity
In our comparisons of men of various age groups living in the traditional hunting camps and those living in settlements, we observed a significant increase in blood cholesterol levels with increase in body fat tissues in those living in settlements. This is more noticeable in the 18 - 40 age group. However, findings indicate that more important than diet is the control of obesity and blood lipids.

Other diseases, e.g. acne, gallbladder disease
Those who worked on the medical problems of Eskimos for many years rarely saw a case of gallbladder disease until a few years ago. Another condition has become prevalent: acne. The condition used to be unknown among Eskimos but one can see it readily among teenagers on the streets of Inuvik, Frobisher Bay and Cambridge Bay. Many people blame their pimples on the pop, chocolate and candies.

NUTRITION AND DENTAL HEALTH

It is interesting to note that until recent times the Inuit and Indian population had very healthy teeth and gums. The introduction of sugar and refined carbohydrates has changed that. Here are some of the beneficial habits that ensured healthy teeth and descriptions of present day habits that have caused rapid deterioration of dental health, according to Dr. Otto Schaeffer, Northern Medical Health Services.

Chewing of bones; in particular the soft ends of ribs and vertebrae and other spongeous bones served as calcium and phosphate sources, and in particular, women with their high requirements during childbearing and lactation, kept in nutritional balance by preferential bone chewing. This also had a cleansing and massaging action on teeth and gums. It's nutritional benefits and its benefit to healthy gums and teeth make it better than milk in some respects. This is particularly true since the majority of Inuit and Indian adults are relatively lactose intolerent and cannot drink milk or absorb the calcium from it.

Dr. Schaeffer's research indicates that sugar consumption among the Inuit has risen drastically. From 1959 to 1967 there was a slight increase, but from 1968 to 1976, sugar consumption quadrupled from 11 kg to 48 kg per person per year. Inuit now consume 50% of their carbohydrates in the form of sugar and lead the rest of Canada and likely the entire world in their absolute and relative amounts of sugar consumed in sweet drinks, candies, chocolate, etc.

What that has done to their dental health, we all know, and no dentist, doctor, nurse or layman having worked or visited over a period of time in the north could fail to observe the relation between the sudden availability of luxury sugars and the epidemic of dental decay gripping children and adults of the north.

EFFECTS OF POOR DENTAL HEALTH

Poor dental health has an effect on the entire body. Loss of teeth, or decayed teeth will affect the type of food a person chooses to eat. If foods selected are those which are easy to chew, they are also foods low in residue or fibre. This, in turn, will affect a person's state of health. There is evidence that with low residue diets, there is an increased incidence of such diseases as gallbladder disease, heart disease and cancer of the colon.

Adequate nutrition may be difficult to achieve if a person has poor dental health and cannot chew food. Foods such as raw fruits and vegetables or meat will be excluded from the diet leading to nutritional deficiencies.

Hence the importance of good dental health cannot be over-stressed in discussing nutrition and health.

Preventive Measures

The pamphlet "Diet and Dental Health" discusses the topics of food and nutrition in relation to dental health. Other pamphlets included in the resource package discuss care of the teeth and preventive measures to stop dental decay.

Refer back to the section on snacks under Food Requirements for more information on choosing dentally acceptable snacks.

STATEMENT FOR THE PUBLIC REGARDING DIET AND CARDIOVASCULAR DISEASE

The Committee on Diet and Cardiovascular Disease, has reviewed the evidence concerning the relationship between diet and cardiovascular disease and also between diet and the general health of Canadians and people of other countries.

Canadians enjoy one of the highest standards of living in the world and a life expectancy from birth to 69.3 years for men and 76 years for women, which is similar to that of other Western nations and higher than that of less industrialized nations. However, in Canada there is a high frequency of disease and death from atherosclerosis (hardening of the arteries causing heart attacks, strokes, etc.). Indeed, 50% of all deaths in Canada are related to atherosclerosis. This condition occurs not only in old age, but also affects significant numbers of Canadians in middle age. About one third of all deaths among people under age 65 are attributed to atherosclerosis. Because Canadian men 45 to 54 years of age have more than twice as many deaths from arteriosclerotic heart disease as men in Sweden, it is reasonable to believe that something can be done to reduce the high death rate in Canada from this cause, especially in the middle-age group (World, 1970).

There are definitely known risk factors for atherosclerosis and its complications such as heart attacks. These include elevated blood fats (cholesterol and triglyceride), high blood pressure, smoking and diabetes. Most Canadians can improve their health and life expectancy by avoiding over-eating and smoking. Medical examinations should include measurement of blood cholesterol, triglycerides, sugar and blood pressure. If any of these are found to be elevated, investigation and treatment should be carried out by a physician.

In addition to these definite health measures, Canadians are also advised to practise moderation in the use of foods and beverages which tend to elevate blood fats and to avoid foods which provide calories without essential vitamins and minerals. The rationale for these recommendations is contained in the scientific report. To help the public select a suitable diet, the Committee recommends the following general guidelines. These should not be considered as a replacement for specific diets prescribed by a physician for treatment of a particular disease or condition.

DIETARY GUIDELINES

(These do not apply to patients on therapeutic diets or infants. Growing persons, pregnant women, nursing mothers and the elderly and infirm should be particularly careful in their selection of foods to include essential nutrients. In growing children, caloric intake should be sufficient to ensure adequate growth).

Canadians should observe the following principles:

- Consume a nutritionally balanced diet, as outlined in Canada's Food Guide.
- Avoid overweight
- Limit the total amount of fat, cholesterol, sugar, alcohol and salt in the diet, and
- Reduce the total amount of saturated fat in the diet and replace some of this with polyunsaturated fats.

Suggestions:

Basic Nutritional Premises:

- a nutritionally adequate meal pattern based on Canada's Food Guide
- 30% to 35% of total calories as fat
- 400 mg or less of cholesterol daily
- a reduction in saturated fat intake and an increase in polyunsaturated fat intake
- 40% to 50% of calories as carbohydrate with a reduction in sugar intake and replacement by starches
- a reduction in use of salty foods and in use of salt in cooking and at table.

To control calories:

- Limit intake of high calorie snack foods such as potato chips, other deep-fried snacks, chocolate and other candies, and soft drinks.
- Limit intake of high calorie, high fat desserts such as pies, cookies, cakes and ice cream.
- Limit intake of all forms of alcohol (spirits, wine and beer are high in calories). Always use in moderation but not daily.

To control cholesterol intake:

- Eat no more than four eggs per week, including eggs used in cooking.
- Limit the use of organ meats and shrimp* to one serving per week.

To control the amount and type of fat:

- Choose lean cuts of meat, trim off visible fat, discard fat that cooks out of meat and avoid gravy.
- Use fish or poultry in place of beef, lamb or pork four or more times a week.
- Avoid foods that are deep-fried, except those fried in polyunsaturated oils (e.g. corn, soya and sunflower seed oil).
- Use cooking methods that help to remove fat such as baking, broiling and boiling.
- Limit the use of high fat, processed meats such as sausages, frankfurters and luncheon meat to two servings per week.

*It should be noted that other shellfish contain much lower amounts of cholesterol and are equivalent to meat.

From Report of: Committee on Diet and Cardiovascular Disease,
Health and Welfare, Canada Dec. 1976

- Make use of vegetable oils, margarines and shortenings that are identified as "polyunsaturated" in place of other fats.
- Reduce intake of whole milk, creams, cream cheese and ice cream.
- Replace these with low-fat dairy products, such as skim or 2% milk, low-fat cottage cheese and yoghurt.

OBESITY

You've heard the saying "You are what you eat." It's true, but it's also true that we are what we don't eat. What we choose not to eat affects us negatively as well as positively. When we eat well, we're not only helping to assure a state of health, we're preventing certain specific health problems. When we eat poorly, our general condition of health goes down and we invite certain specific health problems.

Diet-Oriented Health Problems

A variety of health problems have been directly associated with the diet. Let's take a look at some of those problems in turn and consider how diet is involved in their casue and cure.

Obesity

Obesity, and the various health problems associated with it, is one of the major health problems in North America today. Quite simply, obesity is excessive overweight. Anyone who is more than 20% overweight by desirable weight standards is obese. This means that if your desirable weight is 130 pounds, and your weight is 170 pounds, you are not just overweight, you are technically obese.

Obesity results from over-eating but, to be more specific, it can result from one or more of three causes:

CAUSES OF OBESITY

A person's activity level is normal, but his caloric intake is high.

A person's activity level is very low, but his caloric intake is normal.

A person's activity level is somewhat low, but his caloric intake is somewhat high.

What all three of these "causes" have in common is that the obese individual takes in more calories that he uses and he does so on a regular basis over a long period of time.

"On a regular basis over a long period of time" means that obese people know when they're gaining weight but choose to ignore the situation. And as a result, they leave themselves wide open for a whole lot of health problems. The most talked about problems are heart diseases.

Obese individuals have a much greater chance of developing some kind of heart disease than an individual of normal weight. There are a number of reasons for this; the heart has to work harder in obese individuals, obesity increases the amount of fats in the blood, and obese individuals have a more difficult time getting enough exercise.

Obesity among young people is especially worrisome. It results from the same imbalance between calorie intake and calorie usage as other obesity, but the psychological reasons that stimulate the over-eating may be different.

OBESITY AND THE NATIVE POPULATION

Obesity as a health problem amongst the native population is a relatively new phenomenon. As people moved into settlements and changed their lifestyle from dependence on the land and water for their food supply to a more sedentary way of life, obesity and overweight became more common. The increasing trend towards employment and wage economy often means a less physically active existence particularly for the women.

Accompanying the move to settlements came a change in food habits. Whereas native people traditionally ate when hungry rather than limiting food intake to three meals a day, this pattern has been disrupted or changed. Their traditional "snack foods" were nutritious compared to the convenience foods people nibble on today. With less physical activity and less dependence on game and fish for food supply, people turn to an easier lifestyle and tend to eat more foods of questionable nutritional value. The result is overweight and obesity.

WEIGHT CONTROL

People of all ages tend to put on fat when they consume more calories than they use up. Overweight comes from over-eating, but dieting or reducing calorie consumption is not the only solution. We need a four way approach to weight control and this philosophy has been developed successfully by the nutritionists in the Ontario Ministry of Health for their community weight control programs.

Prevention of Obesity

The most effective long-term approach to controlling obesity is prevention, and must start early in life. There is well documented evidence that:

- Childhood obesity persists.
- It is easier to become obese the second time.
- Obese people tend to withdraw from activity thus aggravating the problem.
- Most weight reduction programs have poor success rates. A large proportion of those who are successful in losing weight often regain the lost weight in one or two years.
- Prevention of the onset of obesity should start with the infant, but there are other targets and these include children of obese parents, persons whose mode of life is changing to a less active one, pregnancy, persons with medical conditions which could become complicated with weight gain, ex-smokers, etc.

Weight Control

There are four approaches to weight control.

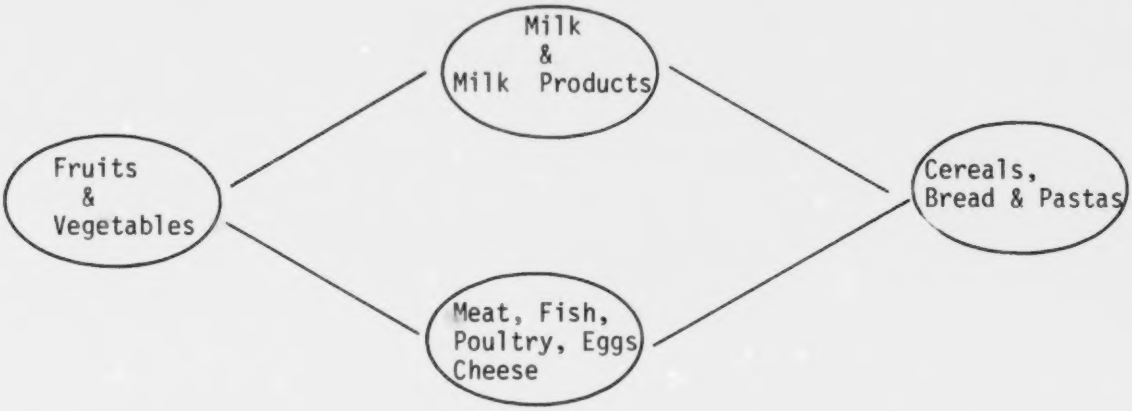
Regulation of intake.

If the intake of calories must be reduced, a special diet may be required. The Characteristics of a Good Reducing Diet require that:

- It should be nutritionally adequate. A diet should contain the foods you should eat for good health every day of your life in slightly reduced amounts, foods you can conveniently prepare or purchase, foods you can afford, and most of all, foods you can eat with pleasure.

  A reducing diet, which includes foods from the Canada Food Guide every day, will be well balanced. Eat the minimum serving recommended on the

Food Guide. This will ensure adequate nutrients.



- It should provide exact details about the number and size of servings, the kinds of foods, and recommended cooking methods. All these factors influence caloric content.

- It should provide a reasonable "caloric deficit" which will cause the loss of 1 kg of body fat/week.

  A "caloric deficit" occurs when caloric input (in food) is less than caloric output (in energy). To lose approximately one pound of body fat per week, it is estimated that a deficit of 3,500 calories a week or 500 calories a day is needed. A loss of 1 kg a week would mean a deficit of approximately 1,000 - 1,500 calories a day.

  Each person, however, has a unique pattern of losing this weight, which is influenced by many factors; fluid retention, menstrual cycle, degree of overweight, type of reducing diet, length of time on reducing diet, physiological characteristics and others. It is, therefore, recognized that establishing and maintaining a "caloric deficit" is a complex medical problem and should be treated as such.

- It should be practical and suited to the dieter. The reducing diet should offer a wide variety of food choices because incomes vary, the availability of food supplies vary with location and season, personal tastes vary, work and leisure activities vary and family habits vary. If the diet is monotonous and impractical, the user won't stick to it for the necessary length of time.

- It should retain eating habits. When enough weight loss is achieved, the dieter should not revert to former eating habits which caused overweight. Instead, he should be able to continue using the practical eating pattern of the reducing diet in order to maintain weight at the new low level. A successful diet keeps weight off indefinitely.
- It should be provided by recognized medical or nutritional authorities.

Some diets not recommended are:

Drinking Man's Diet or Air Force Diet
Unrestricted high protein, high fat diets (calories don't count)
Banana Diet
Grapefruit Diet
Do-it-Yourself Fasting
Mayo Clinic Diet or Egg Diet
Dr. Atkins' Diet Revolution

Activity:

Exercise is an important factor in developing a realistic reducing regimen. The most successful plan will probably combine some degree of increased energy expenditure with some degree of calorie restriction. The degree will depend on the person, his present calorie consumption and his present activity pattern. For an effective increase in energy output an individual approach is necessary.

Activity does not have to be strenuous exercise, a 1/2 hour walk (6 km/h) every day could cause the loss of (6 to 12 kg) per year.

Moderate activities over an extended period of time are more effective than competitive sports.

Activities should be varied so that they do not become boring.

Activities distract from the time available for eating and even more from the preoccupation with it.

Increased activity is particularly important for the overweight child as it is difficult to maintain normal growth during periods of caloric restriction.

Behaviour Modification:

Many obese persons are influenced more by external cues or stimuli in their eating habits than by normal physiological hunger signals; for instance as long as food is before them, they tend to keep eating rather than stopping when they feel satisfied. They also tend to eat little or no breakfast, little lunch and the bulk of their food at dinner, with snacks in between. A change to three or four meals a day without snacking is the pattern advocated.

Efforts made to change eating patterns results in different experiences in the world. These experiences lead to changes in thoughts and feelings which comprise the messages which an overweight person gives himself.

Behavioural Modification consists of behavioural control of eating, management of food intake, and management of exercise.

Very simple exercises designed to change eating habits and increase control of behaviour are practiced over and over until the overweight person has eliminated cues, food associations, patterns of eating and environmental obstacles that have been a problem to him in the past.

Learning to incorporate strenuous activity and substitute activity in place of over-eating helps the overweight person to gain control over his life.

These publications are recommended to those who wish to learn more about behavioural modification.

Ferguson, James, M.D. - Learning to Eat - Behavioral Modification for Weight Control

Bull Publishing Company
P.O. Box 208, Palo Alto, CA 94301
Leaders Manual and Student Manual, 1975

Stuart, Richard & Davis, Barbara - Slim Chance in a Fat World, Behavioral Control of Obesity, 1972

Research Press
2612 North Mattis Avenue
Champaign, Illinois 61820

Behaviour modification is often best achieved through group therapy under professional control. Guidance may be necessary but sometimes the supportive effect of an organized weight control group is all that is necessary.

Follow-up

Once the weight loss goal has been achieved, help must be given to the individuals to maintain their new weight. Is the activity pattern to be maintained? The same diet plan must be continued with some easing of restriction so that no further weight loss occurs but also no weight gain.

Moral support of a group composed of individuals who have achieved weight loss is valuable at this time.

In summary, rational diet construction, planned activity, behaviour modification and follow-up are all essential parts of a successful weight control program.

SECTION III

NUTRITION AND HEALTH PROBLEMS

NUTRITION AND HEALTH PROBLEMS

Brief descriptions of selected lifestyle and nutrition related diseases, including symptoms and routine treatment regimes, are included in this section. This is intended to provide information for the educator and is not meant to be included in nutrition education programs on a routine basis.

DIABETES

Diabetes is a disease characterized by the inability of the body tissues to use carbohydrates (sugars and starch) for energy. Insulin, a hormone* from cells in the pancreas, is needed to assist in the transfer of blood sugar (glucose) across the cell membrane.

When blood sugar levels rise too high, excessive urination and thirst and weight loss result. But more serious are the severe complications such as blindness, heart or kidney disease that can develop. It is not known why the failure of the pancreas occurs so development of a cure or preventive treatment is difficult.

Symptoms

- excessive urination and thirst
- unexplained weight loss
- blurring and other vision changes
- slow healing cuts and bruises
- excessive hunger
- chronic skin irritation
- tendency to tire easily

A doctor should be consulted if you have any of these symptoms.

Diabetes in the Northern Population

Diabetes was at one time a disease unknown amongst the native population but it is becoming increasingly prevalent. The change in lifestyle accompanied by change in eating habits, food and physical activity has contributed to the onset of this disease.

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*Hormone - A chemical produced by the body which regulates the action of other cells and/or organs elsewhere in the body.

First is the problem of obesity. The role of obesity as a risk factor in diabetes is documented. Too much food in relation to ones activity, leads to obesity. The strenuous lifestyle of the past, living off the land, has been replaced with a more sedentary life with food more accessible and available. The resulting problem, obesity, is evident in the North and is a factor in the increased incidence of diabetes.

Women are 50% more likely to have diabetes than men. Part of the reason for this may be the higher incidence of obesity among women.

Researchers are studying nutrition and diet habits particularly in childhood as a possible cause of diabetes. The change in dietary habits of the native people to include a high consumption of refined carbohydrates and sugars certainly points to the influence of diet as one factor.

Consumption of large amounts of sugar badly upsets the blood sugar balance and our entire hormonal and metabolic balancing system. There is evidence that the Inuit and Indian populations have a carbohydrate intolerance. The effects of eating large amounts of sugar are most marked when the sugar is eaten alone or without a preceding protein meal. Because of the carbohydrate intolerance and their susceptibility to diabetes native people should be cautious about excessive consumption of sugar in the form of candies, soft drinks, chocolate, cookies and the like.

Treatment

The management of the diabetic's diet depends on many factors including the type of diabetes. Treatment is highly individual and in some cases has to be changed frequently.

Some diabetics must go on a carbohydrate-restricted diet. Insulin injections might be necessary on a daily basis too.

Often a loss of weight in an obese person will help to normalize her condition. Diabetes will sometimes disappear if an obese person can reduce her weight to a normal weight range.

Other treatment may include certain drugs which stimulate the pancreas to put out more insulin. Whether a diabetic is taking drugs in a tablet form or having insulin injections, adjustment and regulation of the treatment by a doctor is necessary.

GALL BLADDER DISEASE

Function of The Gall Bladder
Bile is prepared by the liver, concentrated and stored by the gall bladder. Bile is extemely important in the digestion and absorption of fats. The gall bladder secretes bile during digestion.

Diseases of The Gall Bladder
Gallstones:

- a high dietary fat intake over a long period of time predisposes to gallstone formation.

Inflammation:

- inflammation of the gall bladder usually results from a low grade chronic infection.

Symptoms

- severe pain
- fullness and distention particularly after eating fatty foods

Treatment
Surgical removal of the gallbladder is usually necessary. Sometimes in the obese, weight loss is necessary before surgery.

Significance
The change to a high fat diet has predisposed northern people to gallbladder disease formerly unknown to the native population. Recent observations suggest that gallbladder disease may be related to the consumption of refined food stuffs and the consequent reduction in dietary fibre content.

VITAMIN C DEFICIENCY

Function of Vitamin C

- Necessary for metabolism of proteins and amino acids.
- Important for the absorption of iron in the intestines and storage of iron in the liver.
- Necessary for the normal function of the adrenal glands.

Requirement

Vitamin C 30 to 60 mg per day, equivalent to:

100 g orange juice;
medium size orange;
10 fresh strawberries;
½ cup wild berries; or
50 g of organ meats.

Symptoms

- Many signs of tissue damage; e.g. bleeding gums, delayed healing of burns and wounds.
- Red spots under the skin from broken red blood vessels.
- Increased frequency of infections; e.g. upper respiratory, bladder, and otitis media.

Cigarette smokers lose more Vitamin C than non-smokers. It is advisable for heavy smokers to increase their Vitamin C intake to 60 - 120 mg. (However, this isn't going to prevent other harmful affects of smoking; e.g. cancer, lung disease).

Vitamin C and the Common Cold

Vitamin C requirements increase in the event of a cold or other infection since the body loses more Vitamin C under such conditions.

Vitamin C Supplements

Either extreme of overloading the body with Vitamin C or not obtaining enough from your diet is serious.

If supplements are necessary it is best to buy the lowest concentration and at the lowest price. Synthetic made Vitamin C responds in just the same way in the body as the natural 'health food' supplements. In fact the best supplements to the diet are oranges, grapefruits, and wild berries. These are rarely available to trappers or people living out on the land. It may be wise for them to purchase supplements.

OTITIS MEDIA

Middle ear infection or otitis media is very common in the North. Some children have these ear infections repeatedly. The infection is caused by one of a number of different kinds of bacteria.

Ear infections are almost always the result of another infection of the nose or throat, a cold, measles, chicken pox, the mumps, tonsillitis or adenoiditis. Repeated ear infections may cause reduced hearing or deafness because the eardrum becomes thickened and scarred when it is inflamed over and over again.

Symptoms of Otitis Media

- Fever, severe pain in the ear.
- Child cries inconsolably due to pain caused by pressure on the eardrum.
- Abcess may form, causing the eardrum to break and pus to be released.
- Blisters may form on the eardrum so the child hears a swishing sound made by fluid in the blister.
- Infants with ear infections may refuse to eat or drink.
- Child or infant may rub or pull at the ear.
- Vomiting, diarrhea, or convulsions might result.

Causes

- Poor nutrition.
- Poor sanitation and hygiene.
- Infectious diseases.
- Babies left lying flat on their backs for long periods of time may develop ear infections.

- Water forced into the ear from swimming and diving.
- Boils and pimples or hardened wax in the ear.

Treatment
Consult a doctor or public health nurse, even if symptoms disappear, since the infection could reoccur without treatment.

IRON DEFICIENCY

A pregnant woman requires 18 mg of iron daily. About 3 to 4 months supply of iron is stored in the developing baby's liver to supply the infants need after birth. A baby born without this supply will require supplements after birth. Adequate iron stores in the mother will fortify her against the blood losses at delivery.

HOW MUCH IRON IS RECOMMENDED DAILY?

According to the Canadian Dietary Standard 1974, the Recommended Daily Nutrient Intake for iron is as follows for the age groups indicated:

Children	0 - 11 months	7 mg
Children	1 - 3 years	8 mg
	4 - 6 years	9 mg
	7 - 9 years	10 mg
Male	13 - 15 years	14 mg
Female	13 - 15 years	14 mg
Male & Female	16 - 18 years	14 mg
Male	19 - 50 years	10 mg
Female	19 - 50 years	14 mg
Male	51 +	10 mg
Female	51 +	9 mg

IRON CONTENT PER SERVING OF SOME KEY IRON SOURCE FOODS

FOOD	SERVING SIZE	MILLIGRAMS OF IRON
Beef (uncooked, lean, trimmed meat)	113 grams	4.2
Beef liver (uncooked)	85 grams	7.5
Pork liver (uncooked)	85 grams	18.5
Beans, baked, canned with pork, tomato sauce	225 grams	4.6
Bran flakes	170 grams	6.0
Broccoli (fresh)	113 grams	0.6
Egg Yolk	1 average	0.9
Strawberries (fresh)	225 grams	1.5
Seal	100 grams	45.0
Caribou	100 grams	3.6
Beluga Whale	100 grams	26.0
Caribou Liver	100 grams	15.0
Walrus	100 grams	43.0

Treatment of Iron-Deficiency Anemia

Obviously, the major way of combating this health problem is to consume more of the foods that are good sources of iron. Except for milk and cheese, high protein foods are a concentrated source of iron, with organ meats of all kinds and dry beans and peas heading the list. A 3/4 cup serving of dried beans or peas, for example, has as much iron as an 80 g serving of lean muscle meat; but an 80 g serving of cooked liver has twice as much iron as the same amount of lean cooked beef.

Dark green leafy vegetables, dried fruits, egg yolk, whole grain, restored and enriched cereals and bread are all good sources of iron. Wild game and meats are good sources of iron. Seal, walrus and whale meat are particularly rich in iron.

HOW DOES ALCOHOLISM RELATE TO NUTRITION

Excessive drinking ruins health!

Alcohol is nothing but empty calories which all too often replaces food containing protein, vitamins and minerals which the body requires.

The food calories alcohol provides could lead to obesity and coronary heart disease. Alcohol interferes with the absorption of several B vitamins and deprives the body of these vitamins even when they are in the diet.

Alcohol disrupts normal sleep and exercise patterns. It slowly interferes with the normal function of the brain and could lead to fatal liver disease.

Alcoholics are the most likely candidates for thiamine deficiency because alcohol interferes with the absorption of several B vitamins including thiamine.

Symptoms of Thiamine Deficiency
- loss of appetite
- constipation
- digestive disturbances
- inability to concentrate or take an interest in work

Advanced Symptoms
- numbness and prickling in toes or feet
- ankles become stiff and lose their reflexes
- various nerves and muscles are affected
- heart function is disturbed

Alcoholism is the chief cause of vitamin deficiencies among people with adequate food supplies.

Treatment
Vitamin supplements alone will not prevent vitamin deficiency symptoms in alcoholics. Adequate food should be provided each day when there is no alcohol in the person's bloodstream to interfere with absorption of vitamins.

'Periodic' hospitalization to treat malnourished alcoholics is necessary. Nutrient deficiencies otherwise can lead to other complications.

Cure of the alcoholic is the only long-term solution.

ALCOHOL AND THE FAMILY'S NUTRITIONAL STATUS

Alcohol abuse has a direct effect upon the nutritional status of the whole family. An alcohol problem in the family may result in food scarcities because the hunter no longer bothers to go out on the land to obtain fish and game for his family. The result -- the whole family suffers. The family suffers too because money income is used to purchase liquor instead of food.

Alcoholism results in many other serious problems. According to one report prepared for the N.W.T. Department of Social Development, 98% of child neglect cases were directly correlated to the abuse of alcohol. Neglect and physical abuse contributes to poor nutritional status. Children left to fend for days at a time by themselves will not obtain sufficient food let alone nutrients.

The following selected sections from the report by Mr. W. Wacko, "Observations and Recommendations Respecting Alcohol and Drugs in the N.W.T." describes the devastating effect of alcohol abuse on the family and the community. The demoralization that results from alcohol abuse is one of the most difficult areas to contend with. To a person or family in such despair, nutrition, health and food availability are not significant.

Summary of Observations

"In respect to the native peoples of the North, there seems to be a general agreement that these are a psychologically hurt people. This is seen in various ways. For example, the growing resentment against the non-natives for coming into their country to take care of them, to research them and to exploit their natural resources. Some see this psychology as similar to an invaded people where there is a continuing passive resistence to what is being imposed on the people. Part of this resistence is reflected in self-destructive processes such as suicide and excessive drinking."

"Historically, many of the experiences of natives with representatives of the broader society have been such that they have contributed to the natives' lack of self-respect or self-confidence. The sense of powerlessness and hopelessness is reflected in various ways, and thus native people with this psychological state are prone to abuse alcohol when they are introduced to it. For many natives are passing through painful stages of transition -- having given up or lost old ways of life and yet not prepared to make it in the white man's world. This prospensity to abuse is enhanced further by the "famine or feast" tradition of the natives. This had led to a pattern of drinking wherein the cork is never returned to the bottle, and the alcohol is consumed as long as it is available. As an illustration of this, apparently there is not Eskimo word for drunkenness, for either a person is one whose way is to drink or one whose way is not to drink."

"There are people in the North who feel that the Government's "hand-out welfare" policies have also contributed to the natives alcohol problems. First, it is said that easily-available social-assistance discourages natives from applying for employment or sticking responsibly with employment once they have it. Apparently, there are no consequences to refusing or leaving jobs, since the individual and his family can draw social-assistance as high or higher than that from employment."

"The second dimension of this problem is seen as the consequent idleness of natives having no responsibility or time-occupying activities. The implications of these observations are that there should be more coordination between those working for the creation and maintenance of employment opportunities and those in charge of social-assistance."

"Additionally, it appears to some people that in the North there exists an "affluent poor". The reference is to native people who have considerable "disposable income" being spent on alcohol beverages since these incomes are not being spent on food, education, recreation or material things which are usually considered necessities by non-natives. It is felt by these people that natives have more available money for alcohol since they are able to save on food costs through hunting and fishing. This may help to explain an under-current of resentment among some northerners toward native people for apparently being able to afford excessive drinking."

Alcohol Abuse in the North More than Alcoholism

"Until recently in the provinces people were divided into two groups - social drinkers (approximately 97%) and alcoholics (3%). Then Ontario researchers established a third category, that of "hazardous drinkers" (about another 3%) to illustrate the continuum of drinking from social drinking to alcoholism, a continuum where boundary lines are hardly perceptible. In the North there appears to be a very distinct additional category, especially among the Indians and Eskimos. This category could best be described as "hazardous cultural drinkers" which makes up a very sizeable proportion of the native population which has learned to drink excessive amounts of alcohol when it is available. This type of drinking is also described as "potlatch" or group drinking. Though not motivated by the kind of craving as that of an alcoholic, this excessive type of drinking is none-the-less damaging to the native people, leading to much child neglect, loss of jobs, physical violence such as wife beating and accidental deaths in fighting, or by freezing in cold weather. An additional dimension of this hazardous type of drinking is the high frequency with which use is made of alcohol in forms not fit for human consumption,which leads to physical damage or death."

"Thus, an alcoholism and drug program for the Northwest Territories must address itself in a unique way to this particular group of people whose serious problems of alcohol abuse may lead them to the Yellowknife Correctional Centre, but who are not alcoholics in the traditional sense. This will require a deeper understanding of this particular category of hazardous drinkers, and the development of new educational and community-involving techniques. A conflict presently exists between many youths who drink and the traditional elders who are opposed to any use of alcohol -- this is both a generational and cultural gap."

"Some respondents resented the approach of A.A. and its total abstinence without appreciating that, for the alcoholics, it was all or nothing. For those already in a pattern of hazardous drinking, it is an open question whether they could be taught moderation. An experiment in this area is currently running at Kenora, Ontario, under the title of AIM - Alcohol in Moderation. Although it is too early to judge the experiment it appears to be in jeopardy because of the confusion between drinking and alcoholism. Some people appear to be protesting the aims of the project as that of teaching alcoholics to drink again rather than an attempt to teach responsible drinking to those not yet alcoholics. However, there may be some lessons in this project as it continues."

W. Wacko

Failure to Thrive

The term failure to thrive is used to explain condition in infants and young children in which the infant does not grow, gain weight or develop at a normal rate during the first few months or year of life.

Causes

Physical conditions:

- such as vomiting, heart disease and other diseases or abnormality of some organ system such as the kidneys or digestive tract. Failure to thrive has been commonly noted in children with shigella.*

Other causes

For those infants with no accompanying physical condition as outlined above, failure to thrive may be a result of inadequate calorie intake. (Not enough milk or food). This may be due to infrequent feeding, small quantity feeds and/or diets with too few calories such as diluted formulas. When history, physical examination and simple laboratory tests fail to yield clues that seem likely to explain failure to thrive, admission to hospital is desirable. Direct observation will permit a conclusion about whether an infant offered an adequate diet and fed by experienced personnel will gain weight at a normal rate. Some infants and children receiving adequate calorie intake may still suffer from failure to thrive. This often is explained by excessive loss of nutrients in the bowel movements or by usually high energy requirements.

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*Shigella - bacteria which causes dysentery.

The above is an example of steatorrhea. Steatorrhea is an intestinal problem which results in improper digestion and absorption of food which results in a type of diarrhea and eventually malnutrition from loss of nutrients.

Prevention

Failure to thrive is a phenomenon found in bottlefed infants. Breast feeding can prevent some of the physical conditions which result in failure to thrive syndrome. Breastfed babies are less likely to suffer from diarrhea and infections due to the protective antibodies in human milk. Breastmilk has a perfect nutritional content and therefore babies won't be underfed because of dilute formulas. Stomach or bowel upsets and kidney problems are less common in breast fed babies as well.

In the book "Maternal - Infant Bonding", authors Klaus and Kennel speculate that failure to thrive occurs from the lack of a mother-infant bond due to early separation of the baby from the mother. Studies show an increase in failure to thrive without apparent cause among premature infants and those hospitalized for other reasons during the newborn period when compared with infants not separated from their mothers. Thus, these authors see some cases of failure to thrive as a "mothering disorder".

SECTION IV

PLANNING WHAT YOU EAT

PLANNING WHAT YOU EAT

The topic of food availability is discussed in terms of food sources: country foods, locally available store foods, and bulk orders of foods. The aim of this section is to provide an understanding of how best to obtain all the necessary foods for a nutritious diet at the least cost by utilizing all available food resources and by using good buymanship skills. Bulk ordering information is included as well as detailed descriptions of country foods and native food resources.

The section on food requirements deals with menu planning and selection of nutritious snacks. Again the emphasis is on learning to select a variety of nutritious foods to meet the day's requirements.

Once people have learned to select nutritious foods, they also must learn how to store and prepare the foods to retain maximum nutritional content as well as prevent food contamination. The section on food preparation and storage explains these procedures.

MENU PLANNING

Attractive, satisfying meals do not just happen. They have to be planned and to do this planning requires knowledge, skill and imagination. Being able to do this is a useful skill for anyone.

The kinds of meals people plan vary considerably according to such things as the size and ages of the family or group, the kind of work they are doing and their food preferences. Besides, meal planning will be influenced by the time, energy, skill, money and food that is available. Even kitchen equipment and location of meals (at home, out on the land) will affect choices.

Food habits and eating patterns have changed considerably for people in the North over the last fifty years. Eating habits are changing from the traditional "snacking" pattern of eating when you're hungry to three meals a day. Either way or a combination of the two can provide a nutritious diet if a variety of different foods are selected from each of the food groups. Most people are especially fond of the dishes they learned to eat when they were young. These foods may have been traditional in their family or national background.

Since some northern people are adapting to three meals a day to fit the routine of work and school, they require some new skills in menu planning.

Menu

A menu is the list of foods to be eaten together at one meal. It often includes a main dish, using fish or meat, or milk, a vegetable which may be separate or cooked with the main dish. It may have a salad, potatoes and soup. It usually has a beverage and dessert.

Breakfast

Most people eat a standard breakfast. Choosing a breakfast such as cereal and milk or eggs or bacon or cheese plus toast and cocoa or milk supplies a considerable amount of protein. Yet, any high protein food will serve as a good breakfast choice. Protein is used slowly by the body and so helps to keep energy at a good level all morning. As a result, hunger is generally not felt before lunch time. Citrus juices and vitaminized apple juice stimulate the appetite in addition to providing a good supply of Vitamin C.

Those who generally skip breakfast might try a small amount of any food they like and then gradually increase the quantity. They ought to find improvement in their morning energy levels.

Dinner

The main meal, dinner, whether at noon or in the evening, often follows a standard plan too. It is usually the most expensive meal because meat, which most North Americans prefer as the major item, is expensive. Using less costly cuts in a variety of ways, making the meat flavor go further with the use of extenders, and substituting poultry, fish, and occasionally dried beans for the meat course, help to keep the costs down. Of course, using wild meat, fish, birds is the least costly alternative in the North.

Lunch

Lunches are harder to plan than breakfasts and dinners can be a test of ingenuity. If lunch is thought of as a real meal, it should contain enough to satisfy body requirements and appetite until the evening meal. Soups, casseroles, salads, eggs in some form, meat or fish sandwiches are often the main items in a lunch. Soups, diluted with water, are particularly unsuitable because such soups fill the stomach but give little return in calories and food value. Milk diluted or thick legume soups are more nutritious. (Legumes include peas, beans and lentils).

Carried lunches become very monotonous unless they are carefully planned. Fillings made of meat, poultry, canned fish, peanut butter, or cheese are far more nutritious and have better staying power than those made of jam or jelly. Leftovers can be converted into interesting fillings the night before and refrigerated, ready for use in the morning. 'Finger foods' such as cooked chicken legs, a piece of dried meat or fish, a hard-boiled egg or wieners, served with a slice of buttered bread, are alternates to sandwiches. For variety, a different kind of bread can be used every few days. A few pickles, celery or carrot sticks add a crisp touch to any bag lunch. Fruit and baked goods are good desserts. Milk in a vacuum flask is an excellent beverage choice.

SNACKS

Many people who work or go to school eat three meals per day. But often they get hungry between meals or before they go to bed. What do they eat? What should they eat? They want something to nibble on because they are just a little bit hungry. They want something that is easy to prepare. Often they buy it, so it should be in a smaller size package; one they can pick up and take with them. We call these small meals SNACKS. Let's look at Canada's Food Guide and try to pick items from it so we know what we should choose.

- Milk, Meat, Fish or substitute which include eggs, cheese, dried beans or nuts. What item do you think of immediately to use as a snack?

- Bread and cereals.
- Fruits and Vegetables - Do you think of raw fruits or vegetables or fruit juices?

Just choose one item from any group you want. A very common snack food - pop or chocolate bars are not even mentioned! Candies or soft drinks will:

- fill you up.
- are easy to eat because you do not have to prepare them.
- will taste good.

BUT are they nutritious? They supply calories but they are "EMPTY". This means that they have no, or very few, nutrients. When people eat too many "junk" foods, they may not be hungry when it is time to eat their meal.

In olden days people used to snack all day and only eat one meal. What did they eat then? Pieces of seal or caribou or fish and they would chew the ends of soft bones. These were good foods and gave them nutrients. With more money available and new foods at the store, people have more choices to make.

Let's look at some "empty" snacks that people eat and see how they can be replaced with a nutritious food.

INSTEAD OF	EAT
Cakes, pies, most cookies,	Caribou, seal, fish, meat,
jam sandwich	egg, or peanut butter sandwich,
Chocolate bar	an apple, orange or other fruit
Potato Chips	Raw vegetables - celery, carrot,
Pizza Spins	turnip, pilot biscuits, cereal
Candy	with milk, raisins, prunes, dried
Cheezies	fruit, cheese and crackers

These empty snack foods, or "junk" foods, can be eaten occasionally, but most of these foods contain a lot of sugar, so eat healthy foods first and save the sweet foods to eat only once in a while or at the end of a meal.

The decision is yours! Do you spend your money on empty foods or do you buy a healthful food that is good for you?

Snacks should be chosen with your teeth in mind since sweet foods contribute to dental cavities.

Truce in the Snack War

You can't make a better snack choice than dried raisins. Right? Right, say vitamin-conscious nutritionists. Wrong, say sugar-aware dentists.

NUTRITIONALLY AND DENTALLY SOUND

Raw fruits & vegetables, unsweetened fruit or vegetable juice, tossed salads or coleslaw.

Plain muffins, plain whole-grain or enriched breads and cereals, crackers, nuts and bolts.

Plain milk (skim, two percent, whole) plain yogurt, cheese (hard or skim).

Hard-cooked eggs, peanuts, mixed nuts, seeds (sunflower, pumpkin, sesame).

Sandwiches filled with meat, poultry, fish, eggs, cheese or peanut butter, hot dogs, hamburgers, pizza.

NUTRITIONALLY SOUND/DENTALLY POOR

In contrast, snack foods in the next group offer good nutrition, but their high sugar content can promote dental decay. Eat them only as part of a total meal, when the increased saliva flow helps neutralize acid that forms in the mouth from the sugar

Milk puddings, milkshakes, chocolate milk or drink, ice cream, ice cream sodas, sweetened yogurt.

Raisins, and other dried fruits, sherbet, sweetened fruits and fruit juices.

NUTRITIONALLY POOR/DENTALLY ACCEPTABLE

A third group includes snacks low in sugar and therefore harmless to teeth but at the same time nutritionally poor.

French fries, popcorn, potato chips, pretzels, cheese nibbles and similar commercial party snacks, sugar-free soft drinks.

NUTRITIONALLY POOR/DENTALLY POOR

Finally, these foods are both high in sugar and low in nutrients.

Regular soft drinks, honey, jams, jellies, sweet baked goods, chocolate bars, cookies, candies, lozenges, regular gum and breath mints.

FOOD AVAILABILITY

Food is available from several sources. It can be purchased locally in the settlement, it can be purchased in bulk orders from the South or it can be obtained from the land: both wild animals and vegetation,and garden produce in some areas.

Availability of food depends on several factors:

- The hunt - if hunting and fishing yield an abundant supply of meat, then less has to be purchased. However, if fish and game supplies are scarce, then people have to turn to the local store for their food.
- Stores - Local stores in the communities may carry a limited supply of groceries. The manager's decisions on which food to stock will influence people's buying choices. Stores are stocked according to the items that sell best not those offering the best nutritional value.
- High cost of transportation and the unpredictable weather conditions influence both the cost and availability of food. Dairy products and fresh produce (fruit and vegetables) that are highly perishable are difficult to transport and hence very costly.

In discussing food availability, one must also consider the nutritional value and food habits of the people in the community. Store foods which are being substituted for land foods may not have the nutritional value of the food they're replacing. It is important to help people understand about the new types of food available to them and how to select a nutritious diet from all sources.

BUYING FOOD LOCALLY

*This information is simplified so it can be translated and handed out to class-members.

All families must spend money to buy food. How much money should a family spend for food? The amount of money the family spends on food depends on many things. These are some of the things that affect the amount of money the family spends on food.

Amount of money the family has:
Example: If the family has a lot of money, the family can spend more money for food than a family that has a little amount of money. The family that has a little amount of money must spend a large part of it on food.

Number and ages of the people in the family:
Example: The more people that there are in the family, the more money the family needs for food. If a family has teenage children, the family needs more money for food than a family that has small children or babies.

Family's food likes:
Example: Some families do not like foods like spaghetti or macaroni or beans; they like only meat. The food for these families would be expensive if meat always had to be bought at the store.

Equipment for cooking food:
Example: Same families may not have an oven in which to cook foods like bread and cookies, so they may buy these foods at the store. These foods are very expensive to buy in the store.

Amount of native food:
Example: If the family has some caribou or seal, they will not have to buy expensive meat at the store.

Season of the year:
Example: Some foods like fresh fruit are more expensive in the winter than they are in the summer. When seal and caribou are available, less money needs to be spent at the store.

Care given to buying, storing and preparing food:
Example: If food is not stored properly, it may become bad and have to be thrown out. This wastes money.

Location of the settlement and stores available:
Example: Some settlements are hard to get into by boats and airplanes. The cost of getting food to these settlements is high and food costs more if it is sent in by air. This limits the variety of food available.

Food is one of the biggest ways a family spends money. Money should be spent for food, housing and clothing before it is spent on things for fun. A definite amount of money should be kept each month for buying food. The good foods in Canada's Food Guide should be bought first.

Foods like cookies, pop, sugar, candy are very expensive and provide no food value. It is better to purchase nutritious foods such as milk, fruits, and vegetables with food money and if there is some left over, treats or more expensive items can be purchased.

SOME THINGS TO DO WHEN BUYING LOCALLY
(A list for the Northern Consumer)

- Before going to the store, make a list of the foods which are needed. Know what foods will be served for the three meals in a day. If the shopper knows what meals will be served the next day, she can buy all the food at one time. This is a good idea if the shopper is very busy and cannot go to the store every day.
- Read the labels on the food packages and cans. Labels tell people the number of servings in the can or package and ways to prepare and store food.
- Buy foods in sizes that can be used or stored easily. Buy big boxes of milk powder and big boxes of flour if these will be used every day, as it is usually cheaper to buy in bulk.
- Buy new foods, or food the family has not tried, in small packages.
- Check cans for bulges or dents. Do not buy damaged cans because the food inside might not be good.
- Buy fresh foods when they first come into the store. Unless plenty of money for food is available, do not buy fresh foods if the price is very high because dried and canned foods are almost as good for people.
- If there is more than one store in the settlement, check the food prices. Buy foods in the store which sells good food for less money.
- If there are two kinds of the same food at the store, look at the prices and labels of the food. Compare the cost for a serving and decide which is the cheapest to buy.
- Eat before you shop so you will not be tempted to buy food because you feel hungry.
- Only purchase the amount of perishable foods, such as meat and frozen food that you will use immediately unless you have storage space.

The persons preparing meals should know how much money is spent on food for the family each week or month.

IF THE COST OF FOOD IS TOO HIGH . . .

- Foods that have to be cooked cost less than foods that do not have to be cooked. Buy rolled oats instead of cornflakes. Make soup at home instead of buying expensive canned soup. Make bread and cookies at home instead of buying them at the store.
- Buy big boxes of dried skimmed milk. This is the cheapest kind of milk to buy. Canned milk is the most expensive kind of milk to buy.
- Use fish or dried peas and beans instead of meat once or twice a week. Dried peas and beans or fish cost less than meat and they are just as good as meat for the family.
- Buy a lower cost food instead of a more expensive food within the same food group of Canada's Food Guide. Buy "standard" canned fruits and vegetables instead of "choice" and "fancy" fruits and vegetables.
- Do not waste food. If too much food was cooked for one meal, save it for the next day.
- Buy foods on sale when the store sells some foods at a cheaper price, if you have the storage space.
- Store food properly so it will not spoil. If there is some food left in the can, take it out of the can, place it in a covered container and refrigerate for the next day.
- Do not buy expensive canned meat like shrimp, ham, and corned beef regularly. Try to use land foods instead.
- If there is not very much meat, serve meat with cooked macaroni, spaghetti, milk sauce or rice to make more food.
- Dry and freeze fresh meat. Save it for times when there is not very much meat.
- Can and freeze berries in the summer so that less fruit will have to be bought in the winter.
- Buy dried fruit which costs less money than canned fruit.

BULK FOOD BUYING: WHAT, WHY, HOW

WHAT IS BULK FOOD BUYING

Bulk food buying means different things to different people in different places. If you live in a large centre such as Yellowknife or Hay River it may involve taking advantage of the local grocery store's weekend specials. You may be able to get a case of canned apple juice for several dollars less than the regular price or several expensive cuts of meat at bargain price.

If you live in a smaller community such as Inuvik or Norman Wells, bulk food buying may mean ordering a year's supply of food from an outside company such as MacDonald's Consolidated or Home Provisioners in Edmonton in time to have it sea lifted or barged in .

WHY BUY FOOD IN BULK

If you live in an isolated community with only one store you may find ordering six months or a year's supply of food provides you with many necessary food items you would not otherwise be able to obtain except at an exorbitant price. Therefore, in some places, a good reason for bulk food buying is the substantial saving to be gained. Other reasons are: convenience, better eating, more varied meals as a result of having different foods on hand; bulk ordering avoids impulse buying at the store and an avoidance of junk foods (why order and pay freight charges on these unnecessary items?)

Things to be aware of, however, when ordering a large supply of food are that:

- You still may need to buy specialty foods such as condiments from the local store.
- In ordering a year's supply you might make such errors as over or under buying or ordering something no one likes.
- By having all your food on hand you may not be able to capitalize on sales at the community store.

- In ordering a year's supply, you are probably getting just one company's brand.
- You still must buy fresh produce from the store.
- When bulk food buying, the intitial outlay is often very expensive.

HOW MUCH FOOD TO BUY

How, how much and what you bulk buy depends not only on where you live but also on:

The amount of money you have to spend on food:
Whether your bulk food buying is taking advantage of weekend specials or ordering a year's supply of food, you generally must have sufficient money on hand to buy in quantity. Many people do not have enough money at one time or are unwilling to part with such a large sum and, as a result, miss out on good food buys.

Your family's appetite, food likes and dislikes:
This is really an important point. After all, what's the point of ordering a year's supply of spinach if no one in your family will eat it?

WHETHER OR NOT YOU HAVE A GARDEN

Having a productive garden during the summer can save you food dollars if you properly store and use your fresh garden vegetables through the winter.

AVAILABILITY

In some communities available food may be very plentiful in the form of caribou, reindeer, seal, ducks, geese, ptarmigan, fish and wild berries. However, in other communities the availability of food is such that necessitates ordering a year's supply elsewhere.

STORAGE

In small communities many local people don't bulk buy because of no storage space in their homes. However, in northern areas the permafrost can serve as an excellent freezer all year long. In some places government freezers and lockers are available. Such areas as under the bed can provide good storage space for canned items. If ordering a year's supply of food is a necessity, a freezer may be a good investment.

WHERE DO YOU ORDER FROM?

Check with your friends and neighbours or people who have ordered bulk supplies before. Each region should order from the supplier closest to them to save on transportation costs. These are some of the suppliers:

Weidman Food Distributors,
Winnipeg, Manitoba

Mall Foods,
Winnipeg, Manitoba

MacDonald's Consolidated,
Edmonton, Alberta

St. M. Store,
Churchill, Manitoba

Home Provisioners,
Edmonton, Alberta

HOW TO ORDER

Each wholesaler will have a certain procedure to follow when ordering supplies. Check with someone who has placed an order before or find out from the wholesaler what the procedure is.

This is an example of procedure for ordering from Mall Foods in Winnipeg:

- Make out two grocery lists specifying the size, brand, quality, etc. Keep one copy for yourself and send the other copy to Mall Foods.
- Make out a blank cheque to the company and sign your name to it. The company will send an invoice with the cost of each grocery item and the total cost. They will also fill in the total on the cheque.
  Note: Specify not to exceed X dollars on the cheque.

Services

Check to see if you can order individual items or if you must order by the case. Sometimes there is a charge for splitting a case.

Transportation Charges

Check with the company what the charges are to transport the groceries to the barge or shippers (NTCL). Also check with the transportation company what their charges will be. This is an example of charges for transportation:

Dry Groceries

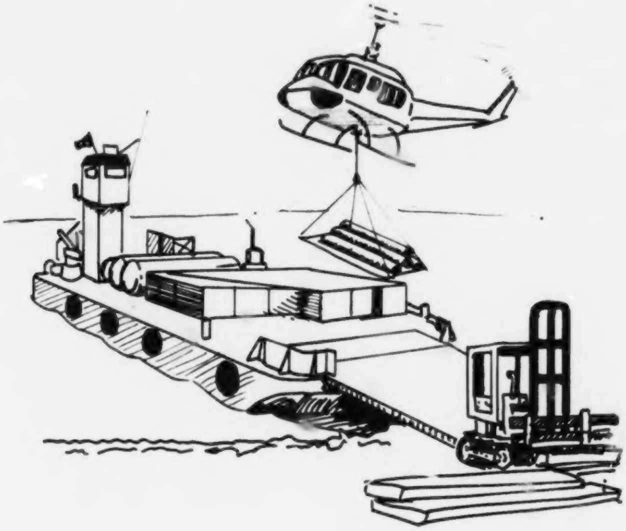
In Winnipeg it costs $3.00 to send groceries from the store to NTCL. (Northern Transportation Company Limited). NTCL then charges 18¢/kg to ship from Winnipeg to Churchill.

Frozen foods will be packed in dry ice. Dry ice charge is $1.00 per packed box.

Other charges

From Churchill to Rankin Inlet 1977, NTCL charges on

Dry Goods - 20¢/kg
Frozen - 25¢/kg



Now to get down to the nitty gritty. Following Canada's Food Guide you know what foods to eat in one day but the real question is "How much to order for say six months or one year?" The Department of National Health and Welfare has developed a chart which gives the approximate number of litres, kilograms and grams of the various food groups men, women and children up to 20 years old need for a week. Then to figure out how much is needed for six months you simply multiply by 26; for one year you multiply by 52. It is helpful if you are aware of approximately how much your family eats already.

A little helper:

If appetites are average, you can count on ...

3 to 4 servings - from 500 g of most fruits
10 to 12 servings - from 500 g prunes 40 to 50 size
3 to 4 servings - from 500 g potatoes and most other vegetables
4 to 5 servings - from a 500 mL can of fruit, vegetables or juice
22 to 24 slices - from a 750 g loaf of bread (1 slice equals approximately 30 g)
12 to 16 servings - from 500 g dry cereal
4 to 5 servings - from 500 g boneless meat, filleted fish
1 to 2 servings - from 500 g meat with much bone and gristle
6 servings - from a 2 - 2.5 kg chicken
3 to 4 servings - from 250 g cottage cheese
5 to 6 servings - from 500 g dried beans
50 cups - from 500 g coffee
200 cups - from 500 g tea

This chart requires you do some figuring on your own however. For example, most likely you will be ordering powdered skim milk and as this milk comes in boxes of various sizes, you must know how many equivalent litres you will get in a box. In ordering milk, besides using it for drinking, don't forget about your baking needs. If you bake your own bannock, bread, buns you will need more milk and may not need to order bread at all.

DON'T FORGET, WHEN BULK FOOD BUYING, TO CONSIDER

Your family's needs and requirements - is your family light or heavy eaters; does someone do a lot of baking or none at all; food requirements on special occasions such as Christmas, birthdays and so on.

The amount of money available for food.

If you have sufficient and proper storage space for everything.

Don't forget to choose from the many different kinds of food available.

FOOD	VARIETIES
MILK Whole Skim	Fluid, dried, evaporated fluid,
FRUIT Citrus	Orange, grapefruit, orange juice, grapefruit juice, or blended
or Tomatoes	Fresh, canned, juice
or Equivalents	Vitaminized apple juice in season - cantaloupe, strawberries, black and red currants, rose hips
Other Fruit	Any fresh, canned, dried, frozen fruit e.g. apples, peaches, prunes, bananas, pears, apricots
VEGETABLES	
Potatoes	White, sweet
Other vegetables	Any fresh, canned or frozen vegetables e.g. turnip, carrots, peas, corn, cabbage, onions, beans
BREAD AND CEREALS	
Bread	(Whole wheat, cracked wheat, rye, white, rolls, quick breads, crackers)
Whole grain cereals	Rolled oats, cracked wheat, rolled wheat, whole grain ready-to-eat breakfast cereals, brown rice, whole wheat flour.
Enriched products will be described on the labels.	
Refined cereals	White flour, polished rice, macaroni, spaghetti, cornstarch, barley, cornmeal, tapioca, cream of wheat.

MEAT AND FISH	
Meat	Beef, lamb, pork, veal, poultry, liver, heart, tongue, kidney
Fish and Shellfish	Fresh, frozen, dried, salt, canned, smoked
Eggs	Small, medium, large, extra large
Cheese	Canadian, cottage, processed
Dried vegetables and nuts	Navy beans, split peas, dried whole peas, lima beans, peanuts, peanut butter
Vitamin D	In liquid, drops, tablets, capsules
EXTRA FOODS	
Fats	Butter, lard, fortified margarine, shortening, salad oils
Sugar and other sweets	Honey, syrups, molasses, assorted jams and jellies

GUIDES FOR BULK ORDERING

The following pages will help you plan your food orders.

The check lists are useful to determine which items you really should buy. They have columns to indicate which food is available all year, by sealift only or not available at all. You can also record prices for comparison.

From these guidelines you can plan your grocery supply and prepare the bulk order.

FOOD GROUPS

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MILK, ICE CREAM, CHEESE — ᐃᒻᒧᒃ, ᐊᐃᓯᑯᕆᒻ, ᓰᓯᓗ

Liquid Milk — ᐃᒻᒧᒃ ᐸᓂᕐᑰᖕᒋᑦᑐᖅ
Canned milk-whole — ᐃᒻᒧᒃ ᐃᓚᖕᒋᕐᑕᐅᓯᒪᖕᒋᑦᑐᖅ ᐅᕐᓱᖕᒐᓂᒃ
(Carnation) —(Carnation)
-partly skimmed — ᐃᒻᒧᒃ ᐃᓚᖕᒋᕐᑕᐅᓯᒪᒐᓚᒃᑐᖅ ᐅᕐᓱᖕᒐᓂᒃ
Powdered milk-whole — ᐃᒻᒧᒃ ᐃᒪᖕᒐ ᑭᓯᐊᓂ ᐲᔭᖅᓯᒪᔪᖅ
(Klim) — (ᐊᑎᕐᑲᖅ ᑭᓚᒻ ᖃᑦᑖᕐᔪᒪᒦᑦᑐᖅ)
-skim milk — ᐃᒻᒧᒃ ᐸᓂᕐᓇᖅ ᐅᕐᓱᖕᒐᑕ ᐃᓚᖕᒐ ᐲᔭᖅᓯᒪᔪᖅ
(Carnation, etc.) — (ᑳᕐᓇᐃᓴᓐ ᐊᓯᖕᒋᓪᓗ)
buttermilk — ᐃᒻᒧᒃ ᐅᕐᓱᐃᕐᓯᒪᔪᖅ
Ice Cream — ᐊᐃᓯᑯᕇᒻ (ᐃᒻᒧᒃ ᖁᐊᖅ)Ice cream

Processed cheese (package) — ᓰᓰᑦ ᐊᖅᑭᑐᑦ (ᕿᓪᓚᕐᑕᒥᒃ ᐴᖅᓯᒪᔪᑦ)
(Velveeta, etc.) — (ᐊᑎᕐᑲᑐᑦ Velveeta ,ᒥ) ᐊᓯᖕᒋᓪᓗ
Processed cheese slices — ᓰᓰᑦ ᐊᖅᑮᑦᑐᑦ ᐊᕕᒃᑐᕐᓯᒪᓪᓗᑎᒃ
Cheddar cheese — ᓰᓯ ᑎᓯᔪᖅ (ᐅᖁᒃᓴᕐᐃᑦᑐᖅ)
Other cheeses? — ᐊᓯᖕᒋᓪᓗ?

EGGS — ᒪᓐᓃᑦ

Whole eggs - large — ᒪᓐᓃᑦ – ᐊᖕᒋᔫᑏᑦ
- medium – ᒥᑭᓐᓂᕐᓴᐃᑦ

Powdered eggs — ᒪᓐᓃᑦ ᐸᓂᕐᑐᑦ

MEAT, POULTRY, FISH — ᓂᖀᑦ, ᑎᖕᒥᐊᕕᓃᑦ, ᐃᖃᓗᐃᓪᓗ

Chicken, whole — ᐊᕿᒋᐅᔭᕕᓂᖅ
-legs or breasts — ᓂᐅᕕᓂᖕᒋᒃ ᖃᑖᖕᒐᓘᓐᓃᑦ
Pork chops — ᑰᒃ ᑰᓯᕕᓃᑦ
Hamburger — ᓂᖀᑦ ᓯᖁᓪᓗᕐᓯᒪᔪᑦ (ᕼ̇ᐊᒻᐳᖁ)
Stewing beef — ᓂᕿᒃ ᖃᔪᓚᐅᕐᒃᓴᖅ
Sausages — ᐅᓰᓴᑦ
Bacon - sliced side bacon — ᕖᑲ – ᐊᕕᒃᑐᕐᓯᒪᓪᓗᑎᒃ ᕖᑲᓐ
- back bacon — ᕖᑲᓐ ᖁᓘᖕᒐᓃᑐᕕᓂᖅ
- canned — ᕖᑲᓐ ᖃᑦᑖᕐᔪᒦᑦᑐᖅ

BEST COPY AVAILABLE

FOOD GROUPS

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Peas - frozen — ᐲᔅ ᑐᖕᒍᔪᖅᑐᑦ ᐱᕐᕈᖅᑐᕕᓃᑦ — ᕐᑯᐊᑦ
- canned — ᕐᑲᑦᒑᕐᔪᖕᒦᑦᑐᑦ
Pumpkin — ᐸᒻᑭᓐ (ᐸᐃᒧᑦ ᐃᑭᐊᕐᒥᐅᓲᑦ) pumpkin
Other vegetables — ᐊᓯᖕᒥᓐᓄ ᓄᓇᕐᕕᓃᑦ ᐱᕐᕈᕐᑐᕕᓃᑦ

FLOURS AND CEREALS — ᐸᓚᐅᒑᖅ ᐅᓪᓛᒃᑯᕐᑐᒪᓐᓄ

Flour - white all-purpose — ᐸᓚᐅᒑᖅ — ᐸᓚᐅᒑᖕᒥᓐᓇᖅ ᕐᑲᐅᓪᓗᕐᑐᖅ
- cake and pastry — ᑲᐃᒃᓴᖅ ᓯᐸᓛᑦᓴᓪᓗ
- whole wheat — ᑲᔪᖅ ᐸᓚᐅᒑᖅ
- other? — ᐊᓯᖕᒥᓐᓄ?

Cake mix - white — ᑲᐃᒃᓴᖅ — ᕐᑲᐅᓪᓗᕐᑕᖅ ᑲᐃᒃᓴᖅ
- chocolate — ᑲᐃᒃᓴᖅ (ᑲᔪᖅ) ᑯᑯ
- other — ᐊᓯᖕᒥᓐᓄ

Corn flakes, other — ᐅᓪᓛᕈᒥᑕᒃᓴᑦ ᐃᒻᒧᓕᕆᐋᑦ (ᐸᓂᕐᑐᑦ)
dried cereals — ᐊᓯᖕᒥᓐᓄ ᐸᓂᕐᑐᑦ
Oats (Oatmeal) — ᐊᕐᑭᑦᑐᔮᖅ (ᐅᕕᓘᔭᑦ)
Cream of Wheat — ᐅᓪᓛᕈᒥᑕᒃᓴᖅ
Red River Cereal — ᐅᓪᓛᕈᒥᑕᒃᓴᖅ Red River Cereal
Macaroni — ᓯᓘᔭᐃᓐ
Spaghetti — ᐃᓇᓘᔭᐃᓐ
Rice - regular — ᐃᖅᑭᐅᔭᓐ, ᓘᓯᓐ — ᐃᒪᔭᕆᐋᑦ ᐊᑯᓂ
- Minute — ᐆᓇᕐᑐᒎᑐᐃᓐᓇᕆᐋᑦ
Pudding Mix — ᓲᕐᓇᕐᑐᓕᐊᒃᓴᑦ pudding Mix
Crackers - Soda — ᓯᐸᓛᑦ — ᓲᕐᓇᖕᒥᑦᑐᑦ
- Ritz — ᓯᐸᓛᑦ ᓲᓯᓖᑦ
- Other — ᐊᓯᖕᒥᓐᓄ

FATS AND OILS

ᐳᓐᓂᖅ ᐅᕐᓱᐃᓐᓄ

Butter - prints — ᐸᑕ — ᐸᐃᐸᐊᒦᑦᑐᖅ
- canned — ᕐᑲᑦᑕᐅᔭᒦᑦᑐᖅ
Margarine — ᐸᑕᐅᔮᖅᑐᖅ Margarine
Shortening - Crisco — ᐳᓐᓂᖅ — ᕐᑲᑦᑕᐅᔭᒦᑦᑐᖅ
- other — ᐳᓐᓃᑦ ᐊᓯᖕᒥᑦ

FOOD GROUPS
ᓂᕐᑮᑦ

Lard	— ᐳᓐᓂᖅ
Salad dressing	— ᑯᕙᕕᕐᑯᑦ ᐃᓚᒥᐅᑎᔭᐅᔫᑦ ᓄᓇᕐᕕᓂᕐᓄᑦ
Vegetable oil	— ᓄᓇᕐᕕᓃᑦ ᐅᕐᓯᐊ

SUGARS AND SWEETS
ᓯᒃᑲᑦ ᓰᕐᓇᕐᑐᓪᓗ

Granulated sugar	— ᓯᒃᑲᖅ ᕐᑲᐅᓪᓗᖅᑕᖅ
Brown sugar	— ᑲᔪᖅ ᓯᒃᑲᖅ
Icing sugar	— ᑲᐃᒃᒧᑦ ᕐᑳᓚᐊᒃᓴᖅ ᓯᒃᑲᖅ
Honey	— Hᐊᓐᓂ
Corn syrup	— ᓰᕐᓇᖅ corn syrup
Molasses	— ᒪᓛᓯ
Jelly powders	— ᐅᓕᑯᓛᖅ (ᓴᔪᒃᑐᖅ, ᓇᔭᐅᔭᖅ)

BABY FRUITS, VEGETABLE, MEATS —ᐱᕐᕈᖅᑐᕕᓃ ᓰᕐᓇᕐᑐᑦ ᓄᓇᕐᕕᓃᓪᓗ ᓄᑕᕋᕐᓄᑦ ᓂᕐᑮᑦ

Infant vegetable	— ᓄᑕᕋᖅᓯᐅᑏᑦ ᓄᓇᕐᕕᓃᑦ
Infant fruit	— ᓄᑕᕋᖅᓯᐅᑏᑦ ᓰᕐᓇᕐᑐᑦ ᐱᕈᖅᑐᕕᓃᑦ
Infant meat	— ᓄᑕᕋᖅᓯᐅᑏᑦ ᓂᕐᑭᑐᐃᓐᓇᐃᑦ

OTHER? ᐊᓯᖕᒋᓐᓘ?

OTHER ITEMS
ᐊᓯᖕᒋᑦ

Instant Coffee	— ᐃᖕᒍᓚᑐᐃᓐᓇᖓᕚᑦ ᑳᐲᑦ
Regular Coffee	— ᑎᕐᑎᒥᕚᑦ ᑳᐲᑦ
Tea bags	— ᑏᑦ ᐴᖅᑲᖖᖅᓯᒪᔪᑦ
Tea	— ᑏ ᑎᕐᑎᒥᕚᑦ
Cocoa	— ᑯᑯᐃᑦ (ᑰᒃᑯᐃ) ᐃᒥᖅᓴᐃᑦ
Hot Chocolate (Quik)	— ᑯᑯᐃᑦ ᐃᒻᒧᓕᑐᐃᓐᓇᖓᕚᑦ ᐆᓇᕐᑐᒥᒃ
Chopped nuts	— ᕐᑲᕐᑯᐊᒐᐃᑦ ᓯᕐᑲᓪᓕᕐᓯᒪᔪᑦ
Chocolate Chips	— ᑯᑯᓛᑦ (ᐃᒐᓗᓂ ᐃᓚᒥᐅᑎᒃᓴᐃᑦ)
Coconut	— ᑰᑯᓇᑦ
Yeast	— ᐳᕙᕙᓪᓚᖅᑯᑎᒃ ᓂᐊᕐᑲᐅᔭᕐᒧᑦ

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FOOD GROUPS ᓂᕐᑮᑦ

Pears	— ᓲᕐᓇᕐᑐᑦ ᐱᕐᕈᖅᑐᕕᓃᑦ (pears)
Strawberries - frozen	— ᐊᕐᐲᑦ — ᕐᑯᐊᑦ
- canned	— ᕐᑲᑦᑖᕐᓱᒦᑦᑐᑦ ᐊᕐᐲᑦ
Blueberries	— ᑭᒍᑎᖕᒥᕐᓇᐃᑦ
Raisins	— ᐊᐅᖕᒪᐅᔭᐃᑦ
Dates	— ᐃᒪᔭᕐᔪᑦ ᐃᓚᓂᐅᑎᒃᓴᐃᑦ (dates)
Dried Apples	— ᐸᓂᕐᑐᑦ ᐋᐳᐃᑦ (ᓱᓪᓘᑦ)
Dried Apricots	— ᓱᐅᑕᐅᔭᐃᑦ
Other dried fruit	— ᐊᓯᖕᒥᓪᓗ ᐱᕐᕈᖅᑐᕕᓃᑦ ᐸᓂᕐᑎᓯᒪᔪᑦ
Other Canned or Frozen fruit	— ᐊᓯᖕᒥᓪᓗ ᕐᑲᑦᑖᕐᓱᒦᑦᑐᑦ ᕐᑯᐊᓪᓗ

POTATOES ᐊᑏᓲᑦ

Fresh	— ᐊᑏᓲᑦ ᓱᕐᕋᕐᓯᒪᖕᒥᑦᑐᑦ
French fried, frozen	— ᐊᑎᓲᑦ ᐅᕐᓱᓗᑦ ᐆᓯᒪᔪᑦ, ᕐᑯᐊᓪᓗ
Canned	— ᐊᑎᓲᑦ ᕐᑲᑦᑖᕐᓱᓚᒦᑦᑐᑦ
Dried - potato flakes	— ᐊᑏᓲᑦ ᐸᓂᕐᑐᑦ— ᐊᑎᓲᑦ ᓱᕐᑯᓪᓗᕐᓯᒪᔪᑦ
- other dried potatoes	— ᐊᓯᖕᒥᓪᓗ ᐸᓂᕐᑎᓯᒪᔪᑦ ᐊᑏᓲᑦ

OTHER VEGETABLES ᓄᓇᕐᕕᓃᑦ ᐱᕐᕈᖅᑐᕕᓃ: ᐊᓯᖕᒥᑦ

Beets	— ᐊᐅᐸᕐᑐᑦ ᓄᓇᕐᕕᓃᑦ (beets)
Carrots - fresh	— ᐊᐃᕐᐃᑦ ᕐᑲᓪᓛᑦ ᓄᓇᖕᒪᓂ ᐱᕐᕈᖅᑐᕕᓃᑦ
- frozen	— ᕐᑯᐊᑦ ᐊᐃᕐᐃᑦ
- canned	— ᕐᑲᑦᑖᕐᓱᓚᒦᑦᑐᑦ ᐊᐃᕐᐃᑦ
Cabbage	— ᓂᐊᕐ ᑯᐸᐃᑦ (cabbage)
Celery	— ᑕᑭᓲᑯᑖᑦ ᑐᖕᔪᓲᖅᑐᑦ ᓄᓇᕐᕕᓃᑦ
Corn - frozen	— ᑭᒍᑕᐅᔭᐃᑦ — ᕐᑯᐊᑦ
- canned	— ᕐᑲᑦᑖᕐᓱᓚᒦᑦᑐᑦ
Green beans	— ᐱᓂᓲᑦ ᑐᖕᔪᕐᑕᐃᑦ
Yellow beans	— ᕐᑯᕐᓱᕐᑕᐃᑦ ᐱᓂᓲᑦ
Lettuce	— ᓄᓇᕐᕕᓂᖅ ᑐᖕᔪᖅᑕᖅ (lettuce)
Mushrooms	— ᕐᑲᓚᓯᐅᔭᐃᑦ
Onions - fresh	— ᐅᐋᓃᑦ — ᓱᕐᕋᕐᓯᒪᑎᓐᓇᒥᑦ
- dried	— ᐸᓂᕐᑎᓪᓗᒥᑦ

FOOD GROUPS

ᓂᕐᑮᑦ

Cold cuts, bologna — ᓂᕐᑮᑦ ᐆᔭᓈᖅᓯᒪᔪᑦ, (bologna)
Frozen fish fillets — ᐃᕐᑲᓗᕕᓃᑦ ᓴᐅᓃᔭᖅᓯᒪᔪᑦ ᕐᑯᐊᑦ
Liver — ᑎᖕᒍᐃᑦ
Roasts - beef — ᐃᒡᒐᐅᑉ ᐃᓪᓗᐊᓂ ᐃᒡᒐᓯᒪᔪᑦ — ᑐᒃᑐᕙᕕᓃᑦ
- pork — ᐃᒻᒧᒃᓯᐅᒐᕕᓃᓐᓗ
Fresh fish - char — ᐃᕐᑲᓗᒃ — ᑕᕐᓇᐅᕐᒥᐅᑕᖅ
- trout, etc. — ᐃᓲᕐᕋᖅ
Caribou — ᑐᒃᑐ

LEGUMES

Pork & Beans — ᐲᓂᕇᑦ ᓂᕐᑭᒥᒃ ᐃᓚᓯᒪᔪᑦ
Peanut Butter — ᐲᓇᑦ ᐸᑕ (ᐊᓇᐅᔭᖅ)

CITRUS FRUIT AND TOMATOES ᐱᕐᕈᖅᑐᕕᓃᑦ ᕉᕐᓇᕐᑐᑦ ᑐᒪᐃᑑᓐᓗ ᐃᒃᑎᖅᒥᑦ

Oranges — ᐅᖕᒑᓗᐃᑦ
Orange juice - frozen — ᐅᖕᒑᓘᑉ ᐃᒃᑎᖅᒐ — ᕐᑯᐊᖅᒍᓗᓂ
- canned — ᕐᑲᑦᑖᕐᔪᖕᒦᓐᓗᓂ
Apple juice - vitaminized — (ᑭᒻᒥᓈᓘᑉ) ᐋᐴᑉ ᐃᒃᑎᖅᒐ — ᐃᓚᐅᕐᑐᕐᓯᒪᔪᖅ
Grapefruit - fresh — ᕐᑯᕐᓱᕐᑕᑦ ᐅᕐᖕᒐᑦ — ᓱᕐᕋᖅᓯᒪᖕᒥᑎᓐᓗᒍ
- canned juice — ᕐᑲᑦᑖᕐᔪᒻᒦᑎᓐᓗᒍ ᐃᒥᒐᐅᓗᓂ
- canned sections — ᕐᑲᑦᑖᕐᔪᒦᓐᓗᑎᒃ ᐊᕕᒃᑐᕐᓯᒪᓗᑎᒃ
Tang - Orange — ᐃᒥᒐᒃᓴᐃᑦ — ᐅᖕᒑᓘᑉ ᐃᒃᑎᖅᒐ
- Other — ᐊᓯᖕᒥᓐᓗ
Tomatoes - fresh — ᑐᒫᑐᐃᑦ — ᓱᕐᕋᖅᓯᒪᖕᒥᑎᓐᓗᒍ
- canned — ᕐᑲᑦᑖᕐᔪᒻᒦᑎᓐᓗᒍ
Tomato juice — ᑐᒪᐃᑑᑦ ᐃᒃᑎᖅᒐ

OTHER FRUIT ᐊᓯᖕᒥᓐᓗ ᐱᕐᕈᖅᑐᕕᓃᑦ ᕉᕐᓇᕐᑐᑦ

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Apples, fresh — ᐋᐳᐃᑦ ᓱᕐᕋᖅᓯᒪᖕᒥᑦᑐᑦ
Apple sauce — ᐋᐳ ᓯᕐᑲᓐᓇᕐᓯᒪᔪᖅ
Fruit cocktail — ᕉᕐᓇᕐᑐᑦ ᐅᐊᕈᑕᕇᑦ
Peaches — Peaches

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SECTION V

COUNTRY FOOD RESOURCES

COUNTRY FOOD RESOURCES

It is important to encourage people to use land foods as much as possible. This does not mean avoiding store foods altogether but rather combining the two food sources to obtain the best possible diet at the least cost.

Native food resources have proven to have high food value and in some cases higher nutrient value than similar store foods. Due to both the cost of store foods and the lack of fresh produce, it is very worthwhile for people to obtain their own foods from the land.

It is sometimes difficult for northern people to understand why they should eat fruits and vegetables on the basis that their traditional diets did not include these and they survived. It is thus useful to explain how the native food resources did provide these essential nutrients (vitamins and minerals in particular). Dr. O. Shaeffer's article in this section provides this information. However, many of the traditional practices have been replaced by more "European-Canadian" food practices and so fruits and vegetables need to be included in the diet.

The tables at the end of this section show some common foods and their nutrient value for comparison of native foods with store foods.

NATIVE FOOD RESOURCES

The following information is from a paper written by Dr. O. Shaeffer, Medical Services, Health and Welfare, Canada. Dr. Schaeffer feels that the use of native foods should be encouraged. He compared the nutritive value of native meats, and domestic meats showing that the native meats are lower in fats and higher in proteins and in certain vitamins and iron. Indians and Eskimos received a large part of their Vitamin C intake from raw, frozen, smoked and dried fish and meats but at the same time were subject to parasitic diseases from the meat. Eskimos also supplemented their diets by chewing soft ends of bones and by eating buds, leaves, roots and berries.

"VALUE OF NATIVE FOOD RESOURCES" BY DR. O. SCHAEFFER

Health and nutrition surveys in Alaska, Greenland and Northern Canada by others and ourselves have shown that, except for odd periods of extreme scarcity leading to suffering or even death by starvation, all Arctic and sub-Arctic native populations were successful in securing in their traditional diets all essential nutrients, minerals and vitamins, resulting in a remarkable lack of nutritional deficiencies or malnutrition in predominantly traditionally living population groups, while both nutritional deficiencies such as - iron deficiency, anemia and malnutrition and obesity are increasingly found in population groups with little or no reliance on native food resources.

Nutrient Value of Native Foods

I enclose a table taken from the Alaskan Health and Nutrition Survey 1954 - 1958 (publ. 1962) comparing typical native Alaskan foods with U.S. diet meats, in particular in regard to protein and fat content.

I modified this table by adding some items (fish, muktuk, etc.) in particular to draw attention to excellent sources for Vitamin C, A, and B group and iron in native foods.

This table demonstrates very well that native fish and meat resources contain much more of the necessary proteins and very little of the potentially harmful fats compared with our commercially available meats from domesticated animals. It further points to berries, seaweed, plants and roots as excellent seasonal sources of Vitamin C, iron and other mineral.

In addition, seasonally available excellent sources of Vitamin C, iron, calcium and other minerals are seaweeds (available all year round where high tides expose them in Eastern Arctic), plants (sourdock, etc., richest source of Vitamin C, buds of creeping willow available in winter and spring on wind-exposed tundra knolls, in summer willow leaves). Both used to be made, in the Western Arctic, with blubber (rich in Vitamins A and D) and berries into "Akootak" or Eskimo ice cream - an extremely rich source of vitamins and minerals.

TABLE #15

FAT CONTENT OF COMMONLY EATEN MEATS

gm/100 gm edible portion - uncooked

ITEM	PROTEIN	FAT	ITEM	PROTEIN	FAT
Seal	32	1.8	Veal Side	19	12
Walrus	27	12.0	Chicken	20	13
Whale	24	0.7	Pork Side	12	45
Oogruk	27	0.4	Lamb Side	16	27
Caribou	27	1.2	Beef Roast	17	23
Moose	26	1.1	Beef Steak	16	25
Polar Bear	26	3.1	Hamburger	16	28
Beaver	14	39.0	Frankfurter	14	21

TABLE #16

NUTRITIONAL VALUES

FOOD ITEM	Prot. (gm %)	Fat (gm %)	CHO (gm %)	Calc. (mg)	Vit. A I.U.	Thiam. (B_1)	Riboflavin (B_2)	Vit. C (mg)
						micrograms		
Whitefish flesh	25.8	1.3	0	356	106	135	222	6 (4-5 mg)
Whitefish liver	11	4.4	5.1	55	8300	14	952	8
Tom Cod*	20.2	3.8	0	494	120	269	625	5
Muktuk	12.3	1.2	18.2	13	--	501	0	2-25
Ptarmigan	25.7	1.4	0	351	trace	71	229	7
Eider Duck	12.3	1.1	17.2	17	--	801	676	12

*Other fish, (trout, char, salmon and pike) similar to whitefish, in dried form protein and fat content are about doubled.

Berries in fresh, dried and frozen form were probably, besides meat and fish, the most important sources of Vitamin C and minerals for northern Indians and were stored in quantities to last through the winter. They were of lesser importance for Eskimos, particularly in the Eastern Arctic, who ate more raw meat and had access to seaweed often year round as an important Vitamin C source.

Value and Danger of Certain Native Feeding Habits

Indians and Eskimos succeeded to adapt their traditional diets sufficiently to avoid nutritional deficiencies in regard to main nutrients, vitamins and minerals despite their adverse habitat, in which early explorers when not adapting to native food suffered often from scurvy and other deficiencies. Choice of type of food and/or of preparation were part of this successful adaptation.

A price, however, was paid for this successful adaptation as the prevalency of a number of zoonotic diseases such as fish tapeworm, trichinosis, brucellosis, etc., attest. Believed to be favoured in their transmission from animal host to humans by e.g. the Eskimo habit of eating raw meat and fish and the Indians' love of smoked fish and dried meat which naturally preserves a maximum of Vitamin C but also keeps alive, at least, inside trichinella and fish tapeworm larvae.

In order not to throw out the baby with the dirty bath water, we must consider in detail some native feeding practices in regard to nutritive and other values versus infection danger and then try to propose some practical compromises aiming at preserving the former while safeguarding against the latter.

"Breast Feeding"

"We have for many years expounded the advantages of breast feeding, the dangers of early weaning, which became particularly obvious in the environment in which our northern native infants and children grow up. Bottle fed Eskimo children, for example, showed a 6 - 10 times higher incident of chronic middle ear disease and 10 - 15 times higher incidence of anemia versus breast fed infants and children."

"Although differences were most marked between children not breast fed at all and those with histories of prolonged lactation, significant differences were also seen between groups with varying length of lactation. The disadvantage and danger of cow's milk and other formulas using foreign proteins, lies not only in easier contamination or lesser digestability, which might be overcome by better hygiene and manipulation of nutrient composition of formulas, as is still widely assumed, but more important, as new research has shown - lack of specific antibodies transmitted in mother's milk and the relative immaturity of the gut of infants up to nine months of age in regard to digestion and absorption of fats and proteins other than those contained in mother's milk. Thus bottle fed infants are left relatively defenseless against many viral and bacterial infections and also prone to hypersensitivity reactions to foreign proteins and malabsorption."

"When supplemented in the traditional way by small amounts of fish and meat from age six months on, prolonged breast-feeding does not lead to iron deficiency, anemia or other deficiencies and should be encouraged for its obvious benefits for infants and mothers as discussed elsewhere."

Eating of Raw Meat and Fish

The high nutritional value of native meat in regard to protein, fat relations and content of iron, calcium and other minerals as well as vitamins, in particular Vitamin C, was demonstrated earlier in this paper.

The supply of Vitamin C is particularly critical in the Arctic as experienced too often by Arctic and Antarctic explorers and it has always intrigued medical and other scientists how Eskimos could get their necessary supplies of it, if they did indeed suffer from Vitamin C deficiency, in view of their limited access to greens and fruits, our main source of Vitamin C.

Extensive nutrition surveys,including plasma determinations of Vitamin C by American scientists and ourselves,found generally satisfactory levels in the plasma and absence of definite clinical signs of scurvy although bleeding, swollen and often infected gums were found with increasing incidence toward the end of winter in some Arctic settlements, especially those with little native meat intake that winter, suggesting possible borderline Vitamin C depletion in these usually on-store-goods subsisting people.

The explanation for the apparent self-sufficiency of northern natives in regard to Vitamin C lies in:

a) Optimal utilization of all available natural Vitamin C resources.
b) Optimal preservation of relying heavily on raw, frozen meat and fish by Eskimos and dried and smoked meat and fish and fresh and dried berries by Indians.

Both optimal utilization and optimal preservation have, in recent years, markedly diminished and the fact that we do not yet see significant degrees of scurvy would indicate either that these inroads have not yet diminished Vitamin C supply from natural sources under required minimum levels or that new supplies (fruits, apples, oranges, imported vegetables or even medication) may have filled the gap.

Dangers?

What are the dangers of eating fresh-raw, raw, frozen, dried and smoked meat and fish?

Fresh-raw and dried or smoked fish can transmit fish tapeworm, while well-cooked and fried fish or fish deep frozen for more than 48 hours is unlikely to do so.

Our knowledge of which types of fish are infested with tapeworm cysts is incomplete as far as the Canadian Arctic is concerned. In southern Canada and up into the Sub-Arctic the most frequently involved species are pike, pickerel and possible perch. In Alaska, Stickleback and Blackfish were found most likely transmitters and in the Mackenzie Basin and Western Arctic, I was impressed that Whitefish and possibly Lake Trout were likely involved. Arctic Char impressed me as the less likely transmitter. No definite research in that species or for that matter in the Canadian Arctic has been done and that was the reason for our interest in cooperating with R. Freeman from Toronto to collect stool samples from representative areas of the Canadian Arctic to elucidate this question.

In the meantime, it appears wise to regard all fish as potential intermediate hosts able to transmit fish tapeworm infestation to people eating it fresh-raw, dried or smoked and to discourage this practice.

Chewing soft ends of bones used to be practised extensively and was an excellent source of calcium, other minerals and nutrients, which explains e.g. the fact that even women with long term heavy losses of calcium by either being pregnant or lactating throughout their gestational period of life did not show premature mineral deficiencies in bone and teeth.

Supplementation of native diets by indigenous terrestrial and marine plants or parts thereof such as leaves, buds, roots, berries and parts of seaweeds.

Seasonal collection of berries, buds, leaves, roots and seaweeds were important supplements to the diet of Indians even more than of Eskimos and stores of dried berries, for example, lasted usually through most of the winter in most aboriginal northern Indian tribal societies and probably were their richest source of Vitamin C.

Eskimos, particularly of the High Arctic, relied less on berries and plant parts due to less plentiful supply and greater difficulties of preservation and storage. They did, however, as indicated above, wherever possible collect seaweeds even in winter time and ate the vegetable contents of stomachs of caribou, rabbit and ptarmigan but none of these practices appeared critically important as long as sufficient fresh meat and fish was available and eaten according to traditional customs. However, even if we succeed with our nutritional education program to retain some of the more valuable and harmless traditional nutrition patterns, we must realize that:

a) native meat and fish will progressively diminish in availability or preference as main nutrients in native diets;
b) Natives will progressively abandon their more ideally Vitamin C - preserving food preparation methods in favour of those practised by us.

For these reasons, supplementation with either native or imported vegetable sources of Vitamin C and/or iron and minerals becomes important.

Berries are one commodity plentiful almost anywhere in northern Canada except for a few places in the High Arctic and are valued as much in western diets as in natives, which promises more success in fostering the idea to collect greater quantities. We should stress, however, their use more in fresh, dried and frozen form and not as jams and jellies in which form most of their original Vitamin C content has been lost and the high sugar mixture adds a problem. I shall discuss this shortly further down.

Berries and fruits growing in high latitudes tend to be richer in Vitamin C than those of the same species growing further south, as was demonstrated with rose hips in Norway. So quality seems to make up for quantity and variety and the teleological principle that nature provides, usually, for any of its own needs, holds thus for Vitamin C as it does for Vitamins A and D (fish and sea mammal liver). Primitive peoples found out by long experience. We have to supplant this in the present breakdown of ecological balance and traditions by conscious teaching. But it helps to remember that local needs can usually be filled by local resources. Reliance should be stressed on berries, local greens such as sourdock and buds of the creeping Arctic willow or seaweeds. Besides this, particularly in winter and spring, import and purchase of oranges, an excellent source of Vitamin C, should be encouraged.

"Although we emphasized in this communication mainly how to preserve the value of native food resources and feeding habits, while safeguarding against parasitic dangers, we cannot discuss nutrition in the north nowadays without, at least in passing, mentioning the adverse effects of 'empty calories' particularly in the form of sugar and sugar-containing foods and drinks replacing the traditional fare. The effect of sugar in every form on dental health is well known and you are aware that this includes secondary effects on nutrition by loss of chewing ability. Consumption of large amounts of sugar badly upsets the blood sugar balance and our entire hormonal and metabolic balancing systems, and these effects are most marked when sugar is taken without preceding protein (meat or fish) meals, as I could demonstrate clearly in Eskimos and some northern Indians.

"We should therefore caution the population against excessive consumption of sugar in the form of candies, soft drinks, chocolates, sweet biscuits, etc., particularly if taken without preceding wholesome meals containing meat or fish.

NUTRITIONAL VALUE OF BANNOCK

	Calories	CHO	Prot.	Fat	Ca	Fe	Na
Bannock							
500 g flour (Approx. 3½ cups)	1666	339	53.6	5	73	13	--
500 g lard (Approx. ½ cup)	1017			113			
2 tablespoons baking powder	20	5			1264		2000
	2693	344	53.6	118	1357	13	2000

This receipe makes a 20 cm diameter loaf of bannock which may be, for the purpose of this calculation, divided into 10 - 12 servings.

One serving would provide:

	Calories	CHO	Prot.	Fat	Ca	Fe	Na
Bannock	245	31	5	11	123	1	182
White Enriched Bread	63	12	2	--	18	.1	138

*Meaning of CHO - carbohydrates
Prot. - Protein
Ca - Calcium
Fe - Iron
Na - Sodium

As seen by this rough calculation, bannock supplies more fat, carbohydrate and calcium to the diet than does bread.

Other recipes for bannock contain less baking powder and therefore will provide less calcium, but this amount is still higher than the amount of calcium in an average slice of bread.

Comparison of commonly eaten domestic vegetables and fruits with edible greens from the James Bay Quebec Area.

TABLE #18

Garden Vegetables	Vit. A (I.U.)	Vitamin C Ascorbic Acid (mg)
cabbage	130	51
celery	240	9
spinach	8,100	51
green peppers	420	128
peas (raw)	640	27
carrots (raw)	11,000	8
beets (boiled)	20	6
potato (boiled)	trace	16
tomato (raw)	900	23
orange	200	50
apple	90	4
Wild Vegetables		
bistort	---	158
dandelion	800-14,000	30-66
fireweed	18,708	220
lyme grass		43
mountain sorrel	8,900	40
rose root	4,106	68
lambs quarter	11,600	80
scurvy grass	4,546	111
sea purslane	5,753	42.5
willow leaves	18,300	190
violet leaves	8,258	210
cloud berries	210-235	158-475

TABLE #19

Ascorbic Acid EDIBLE Greens compared to ascorbic acid content of an orange (50 mg)

Plant	Amount	Ascorbic Acid mg Vitamin C
bistort	1 cup (50 leaves)	32
berries	½ cup	52
dandelion leaves (fresh)	1 cup (20 leaves)	35 - 66
fireweed leaves	1 cup (50 leaves)	30
mountain sorrel leaves	1 cup (80 leaves)	40
rose root leaves	1 cup (75 leaves)	40
lambs quarter leaves	1 cup	24
willow leaves	1 cup (50 leaves, large)	61 - 69
violet leaves	1 cup (25 leaves)	21

TABLE #20

LEVELS OF ASCORBIC ACID (VITAMIN C) IN LAND FOOD

Food	mg/100 g	mg/30 g	Approx. 30 g = to 30 mg ascorbic acid
moose	4	1.20	700 g
beaver	2	.6	1400 g
hare	3	.9	900 g
lynx	3	.9	900 g
ptarmigan	7	2.1	400 g
geese	5	1.5	550 g
loon	2	.6	1400 g
organ meats	54	16.2	60 g

*60 g of organ meat tissue would contribute 32.4 mg ascorbic acid. A minimal requirement for ascorbic acid is 30 mg

SECTION VI

FOOD STORAGE

FOOD STORAGE

However food is purchased, it is usually stored or held for varying lengths of time before being used. The aim to be achieved in storing food is to keep it as much as possible like the original product in appearance, palatability and nutritive value. When properly stored there is a minimum loss of nutrients but when storage is poor, considerable loss is suffered in the vitamin content of the food.

Food is stored in cupboards, storage rooms, freezers, outside, in the ground and wherever else there is available storage space (under the bed?). Here are just a few tips:

Cans and Cupboards

- Don't store food in cabinets through which pipes pass. Insects and rodents may enter through imperfect sealings around pipes; leakage or condensation may cause cans to rust, and potatoes and onions to rot or sprout.
- Check cans. Sticky cans indicate leakage and possible deterioration; bulging means that toxins (poisons) may be forming; be suspicious of cans with weak seams and deep dents. Wash dust or dirt off cans before opening.
- Transfer to refrigerator opened jars of honey, syrup and peanut butter; also refrigerate shelled nuts and bacon drippings. During hot weather keep bread and pastries in the refrigerator.

Tips for Refrigeration

- Wrap fresh meats loosely; wrap or cover leftovers tightly.
- Raw poultry should be unwrapped, placed on a dish and covered. Wrap and store giblets separately.
- Remove stuffing from poultry or meat and store in covered containers.
- Cover egg yolks with cold water and place in covered container; use within four days. Whites of eggs don't need water.
- Keep milk, meats and most leftovers nearest freezing compartment.
- You may place hot foods directly in the refrigerator.

Tips for Freezing

- Wrap all items tightly in heavy aluminum foil, plastic or moisture resistant freezer paper.
- Date packages and arrange food so the oldest is used first.
- Generally, don't refreeze. However, in an emergency frozen foods may be refrozen safely, although colour and texture may be affected. You may refreeze raw and cooked meat, poultry, fish, shellfish, vegetables, soup, fruit pies and fruit juices that are partially thawed and still cold. Immediately discard thawed food if there is the slightest "off" odour.

Generally, it is well to keep food in a cool, well-ventilated place.

RETAINING VITAMINS

Amounts and kinds of vitamins vary with different foods, and depend on the soil and climate plant foods are grown in, and the health of animals we eat. Synthetic vitamins are often added now to food during processing (enriched or fortified). Some vitamins can be lost during processing so food producers may restore these vitamins by adding synthetic vitamins to make the processed food nutritionally equal to the natural, unprocessed food.

Some vitamins are easily destroyed by light, air, heat, and water.

Therefore:

- Use northern fruits such as berries or wild vegetables as often as possible. Prepare them in traditional ways. (Refer to value of native food resources under Food Availability);
- Buy the freshest, unbruised fruits and vegetables, and use them raw when possible;
- Prepare fresh fruits and vegetables just before eating;
- Heat canned vegetables quickly, in their own liquid;
- Follow package directions when preparing frozen vegetables or fruit;
- Use as little H_2O as possible and have it boiling when adding vegetables;
- Cover the pan (except strongly-flavored vegetables), and cook as short a time as possible.

- Save cooking liquid of vegetables (most) for gravies, soups, and stews; and
- Store vegetables and fruits in a cool place.

NOTE: The Vitamin C and the Vitamin A content of wild fruits and vegetables is very high. Berries growing in Northern climates have higher Vitamin C content than the same berries grown in the South or commercially grown.

DAIRY PRODUCTS

Milk

As soon after purchase as possible, fresh milk should be refrigerated. This prevents absorption of odours. Exposure to sunlight is harmful to the flavour and riboflavin of milk. Tri-milk should be stored like regular milk.

Evaporated and condensed milk may be stored at room temperature until opened. Then it must be refrigerated.

Dry milk keeps for long periods of time at room temperatures but should be stored in tightly covered containers to prevent moisture absorption. Otherwise the powdered milk becomes lumpy and develops off-flavours. After water is added, it should be kept covered and cool.

Tri-Milk

Tri-Milk is a product that you don't see in the south so new northerners aren't too familiar with it. Tri-Milk is regular homogenized milk with the water removed. It is not a milk substitute. Consequently, Tri-Milk when reconstituted properly, tastes exactly the same as homogenized milk and is every bit as nourishing.

Tri-Milk is a product manufactured from whole milk, with a butter fat content of 3.25%. This milk is evaporated by heating under a vacuum and in this process 66% of the water is removed. This leaves a very viscous product - 3 litres of milk concentrated into 1 litre. This milk is then repasteurized at 80° C for 16 seconds, homogenized to reduce the size of the butter fat globules and cooled to 20° C prior to packaging.

The only thing required to re-constitute Tri-Milk back to the consistency of whole milk is the addition of 2 litres of fresh clean water which was removed in the evaporation process.

Tri-Milk is a good product for the north where shipping charges play such a big part in prices. Another plus for the product is that the evaporating stage of Tri-Milk is in addition to the normal process of milk pasteurization and adds to the keeping quality of the milk as well as reducing the volume.

Tri-Milk can be and has been frozen and thawed with success, but Palm Dairies discourages this practice unless the product is allowed to thaw in the refrigerator for at least 2 days. They warn against thawing the milk at room temperature or, worse, with warm water because doing so causes the milk to spoil.

Also, Tri-Milk cannot be reconsituted to 2% without drastically altering the non-fat dry milk solids content - you would only end up with a watered down product.

To conclude, Tri-Milk is a good buy for the family that drinks a lot of milk because it costs less than regular milk, has Vitamin D added and is every bit as nourishing.

Cheese

Most cheese keeps well in the refrigerator. Soft cheeses, such as cottage and cream cheese, are highly perishable and should be used within a few days. Cheese spreads may be kept for several weeks if the jar is tightly covered. Hard cheeses, such as Cheddar and Swiss, will keep for several months if well wrapped or stored in a covered container to protect them from drying out. Cheese should be left in its original wrapper and, when cut, should be overwrapped in foil or plastic. If a large piece is to be kept for a long period, the cut side should be protected with a coating of melted paraffin.

If any slight surface mold develops on hard cheese, it can be scraped or cut off before using. Cheese that becomes dry and hard may be grated and stored in a tightly covered jar.

Freezing

You may wish to freeze cheese that is left over from a cheese tray or that has been purchased in a large amount. Freezing prevents mold and also helps some of the more perishable cheeses retain their flavor for a longer period.

Cut cheese in small pieces, weighing no more than 500 g and not more than 3 cm thick. Larger pieces take too long to freeze and tend to crumble when thawed.

Wrap cheese in aluminum foil or plastic material, excluding as much air as possible; freeze and store at -15 °C. Cheese sold in heavy plastic wrap or in a cardboard container (for example, Camembert) does not need additional wrapping. Always thaw cheese in the refrigerator.

The following cheeses may be frozen and stored at least 3 months at -15 °C: Brick, Brie, Blue, Caciocavallo, Camembert, Cheddar, Colby, Gouda, Limburger, Mozzarella, Oka, Parmesan, Provolone, Romano, Swiss and Tilsiter. A few of these cheeses may become crumbly or mealy after freezing but they can be used in salads or in cooking where texture is not important.

Cream cheese and cottage cheese do not freeze well. They become watery and mealy.

EGGS

Dried egg should be kept in a cool, dark place. After the package is opened, the unused portion keeps best in an airtight container with a close fitting lid.

Buy fresh eggs from refrigerated supply and store them in refrigerator at home. Eggs exposed to room temperature lose quality quickly.

Store eggs with large end up.

Keep eggs away from highly flavored foods.

Store leftover yolks or whites in tightly covered container in refrigerator. Add a little water to yolks. Use whites within a week, yolks within 2 or 3 days.

FRUITS

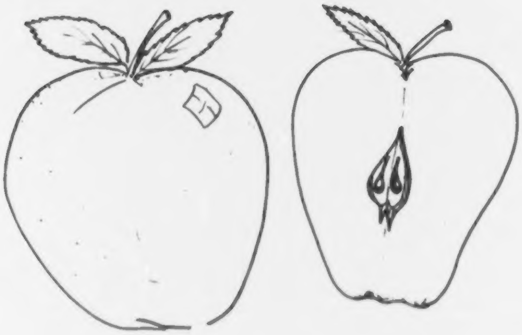
Fresh fruit should be sorted before storing. Injured fruit should be used immediately. Store in a cool, dark, well-ventilated area. If stored in the refrigerator, keep in a covered container or plastic bag with holes. Bananas and unripe fruit should be kept at room temperature. Dried fruits also keep well at room temperature in tightly closed containers.

Fresh berries are perishable. They should be kept dry in a cool, dark place. Dried berries keep well for long periods stored in a plastic bag in a cool place.

Nuts should be stored in airtight containers in the refrigerator or a cool, dark place. Unshelled nuts keep better than shelled ones and unsalted better than salted ones.

Opened jars of preserved fruit (jam, jellies, preserves) should be refrigerated with the container covered. Reconstituted frozen juice concentrates should be kept covered and cool in glass or plastic containers. Tin cans may impart a matallic flavor.

Apples



At home, you should store ripe apples in perforated plastic bags or in the crisper of the refrigerator, to maintain proper humidity and prevent absorption of other food flavors. Store baskets of apples in a cool room (0°C to 4°C) and cover with perforated plastic.

You may freeze raw apples for pies and puddings. Choose firm, mature apples that do not brown readily; wash, peel, core and slice. To prevent discoloration, use 1/8 teaspoon powdered or crystaline ascorbic acid (Vitamin C) or 400 milligrams in tablet form for 2 cups prepared fruit, dissolve ascorbic acid in 2 tablespoons cold water, sprinkle over fruit in bowl and mix gently. To sweeten, add 2 tablespoons sugar for each 2 cups apples and mix lightly to coat pieces. Applesauce, prepared in the usual way, also may be frozen.

VEGETABLES

Fresh vegetables keep best in cool, dark place.

Potatoes

Store potatoes in a cool, dark, well-ventilated place, at about 5 - 10°C. At higher temperatures potatoes may sprout and shrivel, and at lower temperatures they tend to develop a sweet flavor. For best flavor and texture, allow potatoes that have been stored in a cool room to stand at room temperature for several days before cooking. If potatoes are kept in the light, they will turn green and acquire a bitter taste. Discard the green portion when peeling.

If a cool storage room is available, large bags of potatoes may be kept successfully four to nine months, depending on variety. However, if potatoes have to be stored at room temperature, it is best to purchase small quantities at a time and use them as soon as possible.

Onions should be kept in a loosely woven bag or container which allows for good circulation of air.

Raw salad vegetables (lettuce, celery) need to be kept cold and moist in the refrigerator after washing and draining. Storing them in plastic bags helps to reduce evaporation of moisture.

Carrots, beets and radishes keep best in the refrigerator when the tops and root tips are removed.

DRY FOODS

Dry foods, such as flour, cereals, sugar and spices keep well at room temperature in tight containers that keep out dust, moisture and insects. Flour and cereals should be inspected often for insects and moisture.

Bread

What happens to bread as it stays on the shelf?

Bread firms up slightly, but remains wholesome and edible for about a week after it is purchased. The exact length of time depends on temperature, humidity, and resealing. Bagged bread, because resealing is tight and simple, keeps particularly well. From a nutritional standpoint, there is no difference between fresh bread and stale bread. All nutrients are retained, as long as the bread is well packed.

What about the freezing of bread?

If bread is placed in the freezer, it comes out in approximately the same quality state as it is put in. In other words, stale bread in a freezer doesn't in some magical way become fresh again. Actually, it is recommended that bread in a freezer uses up valuable space which could be better utilized by the consumer for other more expensive perishables.

Should you keep bread in the refrigerator?

No. Bread goes stale faster in a refrigerator than in a well-ventilated bread box or cupboard. Keep it sealed at room temperature for greatest freshness (unless you decide to freeze it). Certain health breads on the market today do require refrigeration to inhibit mould, but these are clearly indicated as such, and are a very small part of the billion-plus kilograms of bread sold in Canada each year.

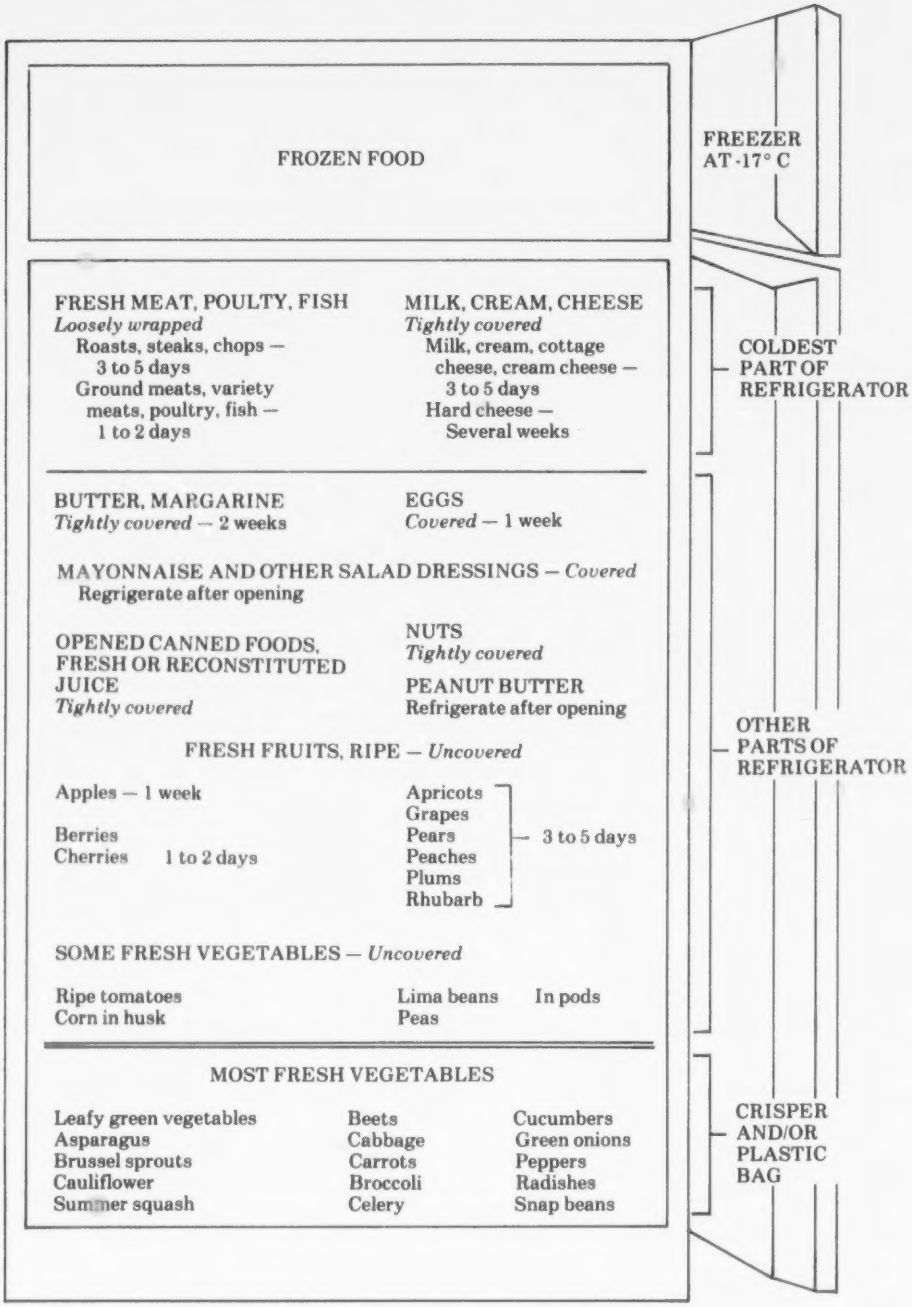
MEAT

Meat requires special storage. If uncooked, it should be kept in a refrigerator, ice box, or some other cold place at all times. If bought at the store the plastic wrapper should be removed, because it draws juices from the meat, and replaced with a loose foil or plastic wrap.

Leftover cooked meat dishes need to be covered, cooled and refrigerated promptly if they are to be held safely.

When freezing, meat should be clean, of a high quality and when possible, frozen in amounts suitable for cooking at one time.

GUIDE TO REFRIGERATOR STORAGE



FREEZER AT -17° C

FROZEN FOOD

COLDEST PART OF REFRIGERATOR

FRESH MEAT, POULTY, FISH
Loosely wrapped
Roasts, steaks, chops — 3 to 5 days
Ground meats, variety meats, poultry, fish — 1 to 2 days

MILK, CREAM, CHEESE
Tightly covered
Milk, cream, cottage cheese, cream cheese — 3 to 5 days
Hard cheese — Several weeks

OTHER PARTS OF REFRIGERATOR

BUTTER, MARGARINE
Tightly covered — 2 weeks

EGGS
Covered — 1 week

MAYONNAISE AND OTHER SALAD DRESSINGS — *Covered*
Regrigerate after opening

OPENED CANNED FOODS, FRESH OR RECONSTITUTED JUICE
Tightly covered

NUTS
Tightly covered

PEANUT BUTTER
Refrigerate after opening

FRESH FRUITS, RIPE — *Uncovered*

Apples — 1 week

Berries
Cherries 1 to 2 days

Apricots
Grapes
Pears
Peaches
Plums
Rhubarb
— 3 to 5 days

SOME FRESH VEGETABLES — *Uncovered*

Ripe tomatoes
Corn in husk

Lima beans
Peas
In pods

CRISPER AND/OR PLASTIC BAG

MOST FRESH VEGETABLES

Leafy green vegetables
Asparagus
Brussel sprouts
Cauliflower
Summer squash

Beets
Cabbage
Carrots
Broccoli
Celery

Cucumbers
Green onions
Peppers
Radishes
Snap beans

TABLE #21

STORING CHART

PRODUCT	STORAGE PERIOD (To maintain its quality) Refrigerate 2 to 5°C Days	 Freezer -17°C Months
FRESH MEATS		
Roasts (beef and lamb)	3 to 5	8 to 12
Roasts (pork and veal)	3 to 5	4 to 8
Steaks (beef)	3 to 5	8 to 12
Chops (lamb and pork)	3 to 5	3 to 4
Ground and Stew Meats	1 to 2	2 to 3
Variety Meats	1 to 2	3 to 4
Sausage (pork)	1 to 2	1 to 2
PROCESSED MEATS		
Bacon	7	1
Frankfurters	7	½
Ham (whole)	7	1 to 2
Ham (half)	3 to 5	1 to 2
Ham (slices)	3	1 to 2
Luncheon Meats	3 to 5*	
Sausage (smoked)	7*	
Sausage (dry and semidry)	14 to 21*	
COOKED MEATS		
Cooked Meats and Meat Dishes	1 to 2	2 to 3
Gravy and Meat Broth	1 to 2	2 to 3
FRESH POULTRY		
Chicken and Turkey	1 to 2	12
Duck and Goose	1 to 2	
Giblets	1 to 2	
COOKED POULTRY		
Pieces (covered with broth)	1 to 2	6
Pieces (not covered)	1 to 2	1
Cooked Poultry Dishes	1 to 2	6
Fried Chicken	1 to 2	4

*Freezing not recommended

FISH

Wipe fresh fish with a clean, damp cloth. Wrap it in wax paper, place in a tightly covered container to prevent transfer of odours, and store in the refrigerator. If the fish is whole, eviscerate it immediately and store in the same way.

Frozen fish should be kept solidly frozen in the unopened package. A very low temperature is required to maintain quality in frozen fish. A constant temperature of -26°C is recommended and since this low temperature is hard to maintain in household freezer units, it is advisable to keep supplies of frozen fish for relatively short periods. Once the fish has been thawed, it must be used quickly since it will spoil as readily as fresh fish. It is not advisable to re-freeze fish that has been thawed. Fish that has once been frozen will not absorb the juices again so that the re-frozen product has little flavour and is tough and rubbery. The amount of juices or "drip" formed when fish is thawed varies with the length and temperature of frozen storage and the rate of freezing. Under ideal conditions, rapid freezing with subsequent constant low temperature storage for a short time results in small drip formation.

Smoked fish should be handled and stored in the same way as fresh fish. The smoking process is used only to enhance the flavour and is not sufficient to preserve the fish.

Home Freezing of Fish

Freshly caught fish may be frozen and stored in the home freezer. Fish should be eviscerated and washed soon after they are caught. If there is to be any delay before freezing they should be packed in ice and stored in the refrigerator.

Fish may be packed whole, filleted or cut into steaks. Before packing, fish should be rinsed in cold brine (one cup coarse salt to 4.5 litres of water) or a two percent ascorbic acid solution (4½ tsps. to 4 cups cold water) may be used to delay rancidity in fatty fish. To prevent deterioration as a result of drying or oxidation, fish should be wrapped in moisture-vapour-proof material and packed tightly to exclude air. Heavy aluminum foil, vapour-proof cellophane, pliofilm, polyethylene, laminated freezer paper and ice-glaze make satisfactory packaging materials.

The packaged fish should be frozen quickly at low temperature to maintain quality of fish and stored at a constant temperature of -26°C. Lean fish will keep well if properly frozen and wrapped for three or four months. Fatty fish should not be kept for more than two months.

Oysters, clams and scallops may be packed in their liquid in containers. They should be completely covered to prevent darkening. Crushed cellophane or foil in the top of the container will help to keep them covered. Lobsters, crabs and shrimp may be frozen but they tend to toughen in storage.

TRADITIONAL METHODS OF PRESERVATION

Traditional methods of preserving fish include freezing, drying and smoking. Fish and Wildlife Service, Government of the N.W.T. recommends that people follow the accepted practices of freezing fish described in the preceding paragraphs.

Although northern people have traditionally frozen fish without any plastic wrap or packaging, (because it was not available), it is not recommended since the quality of the fish deteriorates with moisture loss or freezer burn.

Drying fish in the open with a constant flow of wind will preserve fish if the fish remains outside in the wind and where a protective crust forms on the fish to prevent most organism growth. However, Fish and Wildlife Service suggests that this method is not completely safe and micro-organisms can still grow on the fish and cause deterioration.

Smoking fish either by the cold smoke or hot smoke method is not sufficient to preserve the fish. Freezing is still recommended if the fish is to be kept for any length of time.

Glazing fish is another method of preservation. However, home freezers are usually not cold enough to use for glazing. Commercial canneries use this method by taking a frozen fish and dipping it in ice water. The water glazes the fish with ice and prevents freezer burn.

SECTION VII

COMMUNITY NUTRITION PROGRAM IDEAS

ROLE OF INSTRUCTOR

To teach basic nutrition principles and encourage northerners to make good food choices.

Principles of Learning

Adults learn best:

a) What is immediately useful to them - what they can use now;

b) By doing and practising;

c) By making decisions and participating in the resulting action.

Someone has put it briefly in this way:

Each remembers best what he does
Next best what he sees
Least well what he hears.

Working with a Group

Feeling relaxed and comfortable in a group helps people in the learning process. A group around a table where they can see each other and feel informal makes for good discussion and effective teaching. If at all possible, we should avoid using the lecture - audience arrangement with rows of chairs facing only the instructor.

Establishing a warm friendly atmosphere at the first session helps make a course successful.

You will expect free discussion from all members, but there are always a few individuals who tend to monopolize the discussion. And too there are the shy ones who need drawing out.

Keep the class size small enough so that everyone can participate.

Considerations in Planning a Nutrition Program

Arrange for a suitable meeting place. Try to find an easy-to-reach place which will not involve much travel for the group. A place with kitchen facilities and an informal meeting room is desirable.

Learn about the food habits of local people, what foods they use; have them prepare, cook and serve them. You need first-hand knowledge of the families and their situations in order to understand available resources and limitations.

Consider the characteristics of the local families in relation to their cultural background and education. Recognize and accept differences between your own values and those of the families.

Assess the needs of the local families. Identify problem areas and set priorities for your program based on these.

Set realistic goals for your nutrition programs. They must be simple and easy enough for success. Select goals that will help improve the nutrition of the families. Do not try to include everything in one program.

Relate nutrition concepts to food selection, food storage, preparation and buymanship skills so that the knowledge is practical and easier to accept.

Use a variety of teaching techniques especially learning activities. Try to avoid the lecture approach.

Select educational materials to meet the needs and interests of the group you are working with. If none are suitable for your purpose, enlist the help of someone who can draw posters or illustrations with local content. Use your camera to get slides or photos of local food and nutrition practices.

Check with the statements on Community Nutrition Education and Special Target Groups in the publication, "A Comprehensive Nutrition Program in the Northwest Territories," in the resource package.

SAMPLE LESSON OUTLINES

The following are sample lesson outlines to be used as guides or examples of activities you may wish to adapt to suit the specific needs of your community group.

LESSON OUTLINE — CANADA'S FOOD GUIDE

Purpose (Objective)

Upon completion of the lesson, the group members will be able to:

- Use Canada's Food Guide to choose a daily menu which fulfils all the nutrient requirements for their own family.

- Relate nutrient requirements to the foods available in the community.
- Name local alternative sources of nutrients (e.g. seaweed, plants, etc.)

Presentation

- Give a quiz (written or orally) to determine what the class already knows about nutrition. Keep it very simple - 5 to 10 questions.
- Discuss the fact that no one food contains all the nutrients we need - a variety of food is necessary.
- Explain Canada's Food Guide using a copy or poster, flannelboard and food models.
- As each group is discussed, have class members name foods in that group. Using food models or pictures of local foods, place these on flannelboard.
- Rearrange foods on the flannelboard to show the number of servings of each food group recommended daily. Discuss serving sizes. Actual portions of food could be shown.
- Fats, salad dressings, etc. are "other" foods not mentioned on Canada's Food Guide.
- Hand out copies of Canada's Food Guide for at-home reference.
- Do a dietary recall or have individual class members do one themselves using "I ate these foods today" included in the section of this book on Canada's Food Guide. Discuss the results and how they could change their diet to include all food groups and required servings.

References

- Canada's Food Guide
- Animals and Plants are Good Food
  - Pamphlet Health and Welfare Canada
- The Food Chain (note it has copy of old Food Guide with 5 food groups which has now been changed to 4)
  - Pamphlet
- Canada's Food Guide Handbook
  Health and Welfare Canada

Visuals and Equipment

- Poster of Canada's Food Guide
- Flannelboard
- Food Models (National Dairy Council)
- Pictures of local food
- Food portions
- Equipment for selected activities

LESSON OUTLINE — CANADA'S FOOD GUIDE

Dietary Recall

Use the sheet "I ate these foods today" to have people record what they have eaten for the past two days and determine if they have eaten an adequate diet based on the food groups.

Collect empty food containers with a good sampling of foods from each of the four food groups plus some non-food items or foods which don't fit into any food group (Dream-Whip, candy, chocolate, potato chips, etc.).

Draw a big circle and divide it into 4 pie-shaped pieces, each piece labelled with one of the food groups. Ask people to set the food containers onto the pie shapes according to the food group. When classifying packaged food, it may be helpful to look at the list of ingredients. Labelling regulations require that ingredients listed on food labels be in descending order of proportion. Some foods such as Jello are non-nutritious and don't fit into any food group because they contain only sugar.

Activity - Food Domino

Cut out domino shapes. (12" in length and 4" in width) using colored construction paper. Glue a food picture at both ends of each domino. Draw dominoes matching food pictures of similar food groups. (e.g. bread and rice belong to the cereals and bread group).

LESSON OUTLINE — BINGO

BINGO

MILK GROUP
FRUIT GROUP
MEAT GROUP
BREAD & CEREAL

Ask each person to fill in the names of a food belonging to the milk group on the first line and so forth down the chart.

Each person in the group then in order calls out the name of a food they have marked. For example, under the 'O' - caribou. Anyone who has the same food marks an 'X' on their sheet. The first person to get a straight line or black out is the winner.

Prizes of nutritious snacks could be handed out - peanuts, dried fruit, sunflower seeds, sesame snaps, oatmeal cookies.

Many variations and playing rules for nutrition bingo are available.

Discuss why a balanced diet must contain food from all four food groups. Point out the leader nutrients in each group and describe how the function of that nutrient works, e.g. breads and cereals provide carbohydrates for energy.

LESSON OUTLINE — NUTRIENTS AND THEIR USE BY THE BODY

Purpose
Group members will be able to:

1. Define nutrients
2. State the relationship of nutrients to health
3. State important food sources of key nutrients

Presentation

Explain the meaning of nutrients.

Show a nutrition film

e.g. - Food that Builds Good Health
- Nutritional Needs of our Bodies
- Understanding Vitamins

(These are available from the Department of Education, Regional Resource Centres)

Give an overall view of how nutrients relate to the four food groups:

- What does each nutrient do in the body?
- What are good food sources of the nutrients?
- What amounts of each food are needed to supply recommended nutrients?

*Use food models, pictures or actual servings of food to illustrate this.

Application

- Choose five or more suggested activities at the end of the chapter on "Nutrients and Their Use by the Body". Involve all class members in doing these activities.
- Relate nutrients to foods by having the class prepare a nutritious meal or snack using food from all the food groups. Discuss what nutrients are in the meal.

References

- The Right Combination, A Guide to Food and Nutrition,
  Elizabeth Chant Robertson

- Nutrients and Their Use by the Body,
  (Pages 1 - 80 of this book)

- Handy Nutrition,
  Pamphlet

- Vitamins and your Health,
  Pamphlet

- You and Your Bones,
  Pamphlet

Visuals and Equipment

- Flannelboard, food models, pictures
- Film
- Film Projector
- Equipment for activities selected
- Food and Equipment for preparation

LESSON OUTLINE — FOOD REQUIREMENTS

Suggested Activities

- Discuss a "complete meal", i.e. a meal which contains something from each of the four food groups. Give the class a list of foods and ask for suggestions as to what items could be added or combined to form a complete meal.
  e.g. caribou stew and rice pudding
  spaghetti and meatballs
  potatoes and roast
  salad and chili
- Use food models to illustrate how to select a well-balanced meal (or day's menu). (Food models available from National Dairy Council - See Resources).
- Discuss the importance of breakfast. Ask people to give ideas on how breakfast eating could be encouraged. Ask the class what they had for breakfast. What could they have added to make a more complete meal? Discuss what to serve for breakfast.
- Have the class make a poster showing some nutritious breakfasts. Plan at least three different types of breakfasts. Use magazines to obtain food pictures or draw coloured posters. This same idea could be used for nutritious snacks or lunches.
- Demonstrate how to prepare some nutritious snacks including beverages e.g. milk drinks. Hand out recipe cards. At the next class session ask if the families at home enjoyed the new snack.
- Have an ethnic dinner with foods from around the world. Class members could each prepare a dish.

- If funds are available for purchases and film developing, have the class use a camera to make their own slides illustrating good and poor snack choices.
- List signs a mother might use to indicate she is feeding her family adequately (skin, hair, energy, disease resistance, mental alertness).
- Plan a week's menu based on the food allowance given by Social Development.
- Discuss why coffee and tea have no nutritive value to the body.

LESSON OUTLINE — PREGNANCY

The prenatal period is a unique opportunity for self-analysis of attitude, habits and knowledge about food. It is these food habits which will nourish the infant before birth and will then be passed on in the feeding and teaching of a growing child - who, in turn, nourishes another child in the continuum of life.

Discussions based on the following questions may provide more insight into eating habits:

Which of the following factors (and why) have an important influence on decisions in menu planning and in the supermarket?

- How and where goods are displayed in the store
- Cooking ability
- Personal preferences of family. Who has most influence?
- Cost
- Information on food labels
- Amount of built-in convenience in a product
- Whether it is a "good day" or a "bad day"
- What your mother did
- Calories
- Advertising claims
- Accurate information about nutrient value of foods
- What your neighbour or best friend does

How have you compromised your eating habits and those of your husband, since you have been married?

Where would you go for reliable consumer information about food?

What "changes" in infant feeding practices have occurred in the last few years?

From: Health & Welfare Canada, Selected nutrition teaching aids.

LESSON OUTLINE — NUTRIENTS AND THEIR USE BY THE BODY

Suggested Activities

Have each person complete the checklist "How Do You Score on Nutrition? This could be done with pen and paper or by an interview technique. This individual assessment will help people re-evaluate their eating habits.

Have the class build a mobile illustrating the six essential nutrients and the type of foods in each category.

Do an experiment. Example: Students can discover the function of calcium in bone-building by conducting a simple experiment.

Soak a clean chicken bone in vinegar for several days. Examine it at intervals. After a few days the bone will become pliable and will bend easily.

- What did the vinegar remove from the bone? (Calcium).
- What does calcium do for the bone?
- Why didn't the whole bone dissolve? (Bones contain other materials such as protein).

Show a film on nutrients and their use by the body. The film should be suitable for the age and group viewing it. Check the resource list for suggestions.

Do a nutrition crossword puzzle if the group has reading and writing skills.

Make a Nutrient Collage by collecting pictures of foods from the 4 Food Groups and mounting them under the headings:

Body Builders & Maintenance	(Foods from the meat and alternates group and foods from the milk group)
Health Protectors and Body Helpers	(Foods from the Fruits & Vegetable group)

Find out what foods manufacturers are allowed to enrich or fortify with nutrients - Contact Health Protection Branch, 319 - 269 Main Street, Winnipeg, Manitoba. Compare levels of nutrients in a whole grain cereal product (oatmeal) with an enriched cereal product (cornflakes). Use booklet "Nutrient Values of Some Common Foods", to make comparisons. Why are cereals enriched?

Check labels of other food products in the grocery store to determine which foods have been enriched or fortified with nutrients.

Compare the nutrient value of foods from the fresh state with the same food that has been cooked, canned or frozen. Use booklet "Nutrient Values of Some Common Foods". The booklet is available from Health and Welfare Canada.

Reinforce the idea that the food guide is based on a classification of foods according to their nutrient contents. Select specific foods from each group and look at nutrient comparison cards.

Why do carrots and squash belong to the same food group?
Why are fruits and vegetables in the same group?
Does hamburger contain the same nutrients as oranges?
Why do milk and cheese belong to the same group?
What food group would you put eggs into on the basis of its main nutrients?

Show slides taken of local foods and ask the class to orally determine which food groups are depicted.

Discuss rest and relaxation in relation to digestion. Importance of moderate activities immediately after meals.

Draw and label the digestive tract on a poster. Discuss how food becomes you.

Place a BB shot in a plastic straw and move it along by squeezing the straw. Relate this to the peristaltic action of the muscles in the digestive tract.

LESSON OUTLINE — FUNCTION AND FOOD

Your students should know that the nutrients in the food we eat serve three main functions in the body and foods from the Four Food Groups provide these nutrients. The following chart outlines this information.

Function	Food Group	Leader Nutrients*
BODY BUILDERS & MAINTENANCE CREW	Milk & Milk products	CALCIUM - Builds and keeps bones and teeth strong. PROTEIN - Builds and maintains strong muscles, blood and other body tissues.
HEALTH PROTECTORS AND BODY HELPERS	Meat and Alternatives	PROTEIN - Builds and maintains strong muscles, blood and other tissues. IRON - Helps build and maintain blood. As an extra bonus the meat group provides B-Vitamins. For function, see "Heat and Energy".
HEALTH PROTECTORS AND BODY HELPERS	Fruit and Vegetables	VITAMIN A - Aids in normal growth and helps maintain good vision and clear, unblemished skin. VITAMIN C - Helps to keep teeth, gums and blood vessels healthy. Helps the body resist infections.
HEAT AND ENERGY PROVIDERS	Cereals, Bread and Pastas	CARBOHYDRATE - Chief source of energy to body. B-VITAMINS - Although they do not provide energy, they help the body to utilize the energy in food. As an extra bonus, the Cereals, Bread and Pasta Group also provides the leader nutrient iron. For function see "Body Builders".
	Foods not in a Food Group	Some foods provide carbohydrates and fats but do not provide the additional vitamins and minerals that food from one of the four groups offer.

*Leader Nutrients

One of the main nutrients found in a particular food group that contributes an important function to the body.

For example, it is important to eat milk products in order to obtain the leader nutrients, calcium, protein, and riboflavin.

LESSON OUTLINE — WEIGHT CONTROL

Purpose

Group members will be able to:

- State the relationship between body weight, activity and food intake.
- Identify the factors that contributed to overweight.
- List the dangers of obesity.
- Recognize that all food and most beverages contribute calories to diet in varying amounts.

Presentation

Show a film or slide presentation on weight control, fitness and nutrition.

- see Resource Section, i.e.
  - The Whole Body Manual
  - For Tomorrow we Shall Diet
  - Weight Control - Just a Step Away

Discuss

- What is meant by the term overweight (a person who exceeds a desirable weight by 10% is considered overweight).
- The term obese - a person who exceeds his desirable weight by more than 20% is considered obese.
- Results of nutrition Canada survey reveal over 50% of Canadian adults are overweight. Also a high percentage of teenage girls are overweight.

Discuss these factors which result in people acquiring too much fat:

- Eating because they are bored or frustrated.
- Eating too many high calorie foods.
- Social eating.
- Family's eating patterns.
- Change in lifestyle from active to sedentary.
- Habitual eating pattern (developed in youth).
- Metabolic abnormalities (very small percentage of overweight is due to glandular disturbances).

Ask the group to identify some of the problems related to obesity, such as:

- Difficulty in performing everyday activities - walking, climbing stairs, bending over, etc.
- More risk of developing cardiovascular diseases, diabetes, gall bladder diseases.
- Pregnant women are more prone to toxemia, more complications in delivery.
- Surgery more hazardous.
- Physical appearance less attractive.
- More accident prone.
- More difficult to find jobs.

Review the Canada's Food Guide pointing out that:

- The minimum number of servings recommended by the Canada's Food Guide will supply approximately 1,000 calories. 1,200 calories or slightly more than the minimum servings would be a safe reducing diet for most people.
- Discuss what a calorie is and how it relates to food and energy.
- Illustrate what a serving size is, based on Canada's Food Guide. Use actual portions of food.
- List and discuss suggestions for reducers:
  Emphasize these points:

- Have an exercise break to emphasize the importance of activity in weight loss program.
- Have the class prepare a weight watcher's meal using low calorie foods.

References

Obesity - pamphlet	
Canada's Food Guide Handbook	Health & Welfare Canada
Weight Control Source Book	National Diary Council
Nutritive Value of Some Common Foods	Health & Welfare Canada

Visuals and Equipment

Film

Screen Projector

Food Portions

LESSON OUTLINE — SPECIAL NEEDS OF INFANTS

Purpose

Group members will be able to:

1. State the nutritional needs of infants.
2. State kinds and amounts of foods needed by infants.
3. Prepare food for infants at home.

Presentation

- Discuss milk as a baby's first food. It contains nutrients which infants need for growth and development - protein, vitamins, calcium, and other minerals. It also supplies food energy. By the time a child is one year old, he should be consuming foods from all four food groups in a 3 to 5 meal-a-day pattern.
- Enlist the help of a Public Health Nurse, nutritionist, Home Management Consultant or other qualified person to discuss infant feeding:
    - Breastfeeding or bottle
    - Formula preparation

  - Management of successful breastfeeding
  - Vitamin supplementation
  - Introducing solid foods to infants
  - Weaning the baby
  - Coping with feeding problems
- Discuss community agencies and resources providing information and help for mothers with infants, e.g.
  - Well baby clinics
  - Nursing Station
  - Home Management Educator
  - Community Health Representative

Application

- Demonstrate home preparation of baby foods using a variety of equipment, grater, sieve, blender.
- Have the class prepare several foods suitable for feeding infants at different stages of growth
  - diluted orange juice
  - pureed vegetables
  - mashed fruit
  - strained meat
  - egg yolk
- Have the class members practice bottle sterilization techniques.

References

The Complete Book of Breastfeeding, M.S. Eiger and Sally Windkos (see resources)

Nursing Your Baby, Karen Pryor (see resources-books)

Special Nutrient Needs of Pregnant and Nursing Mothers; infants (Section of this book)

La Leche League International Publications (See resources).

Visuals

Food for the First Year

- Slide show available from Home Management Consultants.

LESSON OUTLINE — SPECIAL NEEDS: INFANTS, ADOLESCENTS, SENIORS

Demonstrate baby food preparation at home - using a blender, a sieve, a grater. Invite a qualified person to discuss introducing solid foods to babies.

Discuss the advantages of breastfeeding, over bottle feeding. A panel discussion with a health nurse, a mother of an infant and Home Management Consultant could be used. Show the slide show "Food for the First Year", available from Home Management Consultants.

Demonstrate baby formula - preparation using a variety of products available locally. Point out cost factors with each type.

Invite mothers to discuss their experiences feeding babies and children and what techniques or special "tricks" were useful to them.

Have a "tasting party" so people can try new foods such as fruits or vegetables, nutritious snacks, breakfast foods.

Mystery boxes - Expose people to unfamiliar foods in their actual form and allow each person to see, touch and smell these foods. Provide mystery boxes that people can reach into and try to identify a food. After everyone has described the food using some of their senses (smell, sound, feel) let them discover what is in the mystery box (sight) and what it tastes like.

A mystery box can be made from a clean 1.5 L juice can covered with attractive paper. Attach the stretch ribbed band of a stocking to the top. People can reach into the can but can't see in it because of the top of the sock.

Take the class on a tour of a food related facility, i.e. a grocery store, a bakery, meat cutting facility to stimulate interest in food and nutrition .

Adolescents could plan a party including nutritious snacks or foods.

Have a cook-out or picnic to illustrate planning and selecting a variety of nutritious foods.

Seniors might enjoy preparing simple meals based on Canada's Food Guide and sharing the meals providing a social occasion as well as a learning experience.

Provide for demonstrations and then hand out illustrated copies showing how to make nutritious meals such as soups, casseroles, egg dishes, etc. that elderly people could try at home.

LESSON OUTLINE — PHYSICAL FITNESS AND NUTRITION

Invite a physical education teacher or sports minded individual to explain what fitness is, why it is important and how to achieve a level of fitness.

Take a 10 minute exercise break during classes or courses and demonstrate simple exercises they can enjoy at home.

Use the "Fit Kit" from Health and Welfare Canada to test each persons state of fitness.

Invite a knowledgeable person to discuss the importance of physical activity in controlling weight. (Health nurse, member of a weight control group, nutritionist, home economics teacher may be able to discuss this).

Show a film or slides on weight control of physical fitness. "The Real Talking Singing Action Movie about Nutrition" available from MacMillan Canada illustrates these topics (see Resources).

Discuss these questions:
- What are the advantages of being physically fit?
- How did people in the north,following the traditional lifestyle,keep fit?
- Do you think there are any shortcuts to becoming physically fit, other than going through physical exercise and exertion?

LESSON OUTLINE — MEAL PLANNING

Purpose

Group members will be able to:
1. Plan food for family meals and snacks.
2. Select a wide variety of foods based on Canada's Food Guide.
3. Consider nutritional value of foods in meal planning.

Presentation

Introduce meal planning by placing food models for a days meals and snacks on a flannelboard. These meals may or may not be adequate. Ask the group to separate foods into the four food groups. If the meals do not meet the recommendations of Canada's Food Guide, ask the group members to suggest foods to add so that the day's intake in each of the four food groups is complete. Use pictures of familiar foods that are used locally.

Discuss different patterns of eating that help distribute nutrients we need throughout the day. An example could be illustrated with food models on flannelboard.

Breakfast: Fruit or juice, bannock or cereal, milk, beverage
Lunch : Main dish, vegetable or fruit, bread, milk or juice
Dinner : Main dish, two vegetables, bread, beverage, dessert

Snacks can help us meet daily needs for nutrients.

Show how food in the three-meal-a-day pattern could also be distributed to cover 6 small meals or snacks.

Show how teenagers can get adequate servings from the milk group in snacks.

Compare food value in empty calorie (candy, pop, etc.) and nutritious snacks (fruit, milk, fruit juices).

Discuss how advanced planning for food for the family:
- Can help save time and money
- Make it easier to follow Canada's Food Guide
- Make it easier to provide variety in family meals and snacks.

Discuss points to consider when planning meals.
- Suit planning to your situation
- Make a list for store foods
- Plan all the food for one day as a unit
- Consider age and activity of family members
- Plan for colour, texture, shape and flavour.

Application
- Try some of the suggested activities under Food Requirements.
- Plan a shopping trip to buy foods for a day's menus. Prepare the food.

References
Recommended Daily Dietary Allowances (Resource Package)

What Did You Have for Breakfast This Morning? - pamphlet
Snacks - chart of nutrient value included under Food Requirements
Cookbooks - Keewatin

Visuals and Equipment
- Food Models
- Canada's Food Guide
- Pictures or actual foods
- Food for preparing a day's menu
- Kitchen facility

Evaluation
Have each person plan a menu for her family for one day.

LESSON OUTLINE — LIFESTYLE AND NUTRITION RELATED DISEASE

Suggested Activities
- Invite guest speakers such as Health Nurse, Nutritionist, etc. to discuss a specific topic of interest to the group, e.g. weight control.
- Have the Dental Therapist talk to the group on dental health, sound eating habits to promote good teeth, dental hygiene, etc. A tour of the dental clinic or facility might be of interest.
- Provide for an experiment to show the effect of pop on teeth. Obtain an animal tooth and place it in a glass of coke. Note what happens to it for several days. This illustrates the harmful effects of too much sugar in products such as pop on the teeth.
- Discuss the importance of iron and Vitamin C in the diet. What happens when people don't get enough (deficiency symptoms). Illustrate what foods are the best sources of these nutrients.
- Discuss alcoholism in relation to nutrition. What is alcoholism, how does it affect the body?
- Specific diseases such as diabetes or gall bladder diseases could be explained if people are interested due to familiarity with someone who has the disease.

- Discuss effects of family eating habits on obesity.
- Evaluate through discussion the dangers of underweight (reduced health, vitality, malnutrition, lowered resistance to disease, effects on internal organs).
- Arrange a speaker (e.g. health nurse, doctor, nutritionalist, etc.) to discuss one of these topics:
  - Prenatal and post natal dietary needs
  - care of diabetics
  - treatment of TB patients
  - therapy of alcoholics
  - treatment of cardiac cases.

LESSON OUTLINE — KEEPING FOOD SAFE TO EAT

Purpose

Group members will be able to:

1. Use proper food storage to protect foods from contamination by harmful bacteria, molds and insect pests.
2. Recognize ways for preventing food contamination by bacteria.

Presentation

Ask class members what methods and equipment they use for storing foods.

List reasons for proper storage of food. Discuss each reason using food examples:

- Better retention of food nutrients;
- Increased retention of food qualities such as flavour, colour, and texture;
- Decrease wasted food;
- Prevention of illness caused by harmful bacteria.

Discuss briefly bacteria in food as a cause of illness. Refer to Health and Welfare Publications or invite Environmental Health Officer to show slides on:

- How disease-producing bacteria or their toxins enter the body and set up infections;

- Characteristics or symptoms of bacterial foodborne illness.

Discuss ways in which bacteria can be:
- Transmitted by poor food handling practices and lack of personal cleanliness;
- Controlled through recommended food handling procedures.

Discuss recommended food storage principles to control:
- Mold and enzymes;
- Insects, flies;
- Harmful bacteria.

Have a display of foods or food pictures that show spoilage due to improper storage, canning or freezing procedures. Ask the class members to examine the display items. Point out signs of food spoilage that make food unpalatable or dangerous to health. Emphasize that all food spoilage is not visible.

Briefly discuss precautions to follow in handling frozen, fresh, canned and dried foods. Use a thermometer poster when discussing temperature.

Application

Discuss general characteristics of good storage containers including improvised storage. Display several kinds of storage containers. Ask class members to select good storage containers and explain the reasons for their choices, what foods might be stored in each, and where each container could be placed for safe keeping.

Ask class to list satisfactory ways to store common foods in the home.

Reference

Food Preparation and Storage (Section of this book)

Selected Nutrition Teaching Aids - Health and Welfare Canada

Visuals and Equipment
- Chalkboard
- Display of spoiled food and/or pictures of spoiled food
- Thermometer poster illustrating temperatures of food for control of bacteria.
- Display of different types of storage containers including improvised ones.

LESSON OUTLINE — FOOD PREPARATION AND STORAGE

Demonstrate how to prepare and store specific foods. One example might be preparation of vegetables. Demonstrate the chinese stir-frying methods which is one of the best ways to cook vegetables while preserving the nutritional value.

Have a demonstration of meat wrapping for storage in a freezer. Use several different types of wrapping material.

Discuss how to make the best use of a freezer - what foods to store in it, how to pack foods, how long to keep them, etc.

Show slides or films on food contamination, food poisoning, etc. Contact Health and Welfare Canada for information and hand-outs.

Invite the Environmental Health Officer to do a presentation on food-borne diseases.

Display a variety of processed foods and discuss what methods of preservation have been used. (Canning, drying, dehydration, freezing, smoking, salting, pickling, freeze-dried).

Expose a variety of foods to the air at room temperature. Note how long it takes for each kind of food to spoil. Discuss how these foods are 'kept' when they are transported and when they are in stores. Identify the signs of food spoilage: odour, change in texture, change in appearance and colour, change in taste.

Soak some dried food such as prunes, raisins, macaroni, milk and soup in water. Observe the effect on the food; permit the soaked food to remain exposed to the air at room temperature for several days. Discuss why this soaked food spoiled.

Discuss the nutritional value of raw and cooked vegetables. Why do we cook foods?

LESSON OUTLINE — FOOD AVAILABILITY

Suggested Activities

- Try some of the activities and demonstrations outlined under "Buymanship - Locally".
- Help people fill out sample bulk food orders taking into consideration family size, requirements and locally available foods.
- Discuss traditional ways of obtaining food and how the traditional diet provided adequate nutrients. Compare today's eating habits with traditional ways and discuss how the two can complement each other to provide all the nutrients required.
- Invite an elderly person familiar with traditional cooking to prepare some food and talk about the "old ways".
- Have the class suggest ways the local stores could improve the food selection, i.e. stocking small cans of fruit juice instead of pop or along with the pop. Present the ideas to local store manager.

LESSON OUTLINE — BUYMANSHIP

Food buymanship and nutrition can be combined with a cooking class to stimulate people's interest and awareness.

These demonstrations and activities were developed by the Home Management Consultant, Rankin Inlet.

Which is the better buy?
Arrange a display of several sizes of cans containing the same food. Have the class find out which is the cheapest size to buy. Calculate the price per mL of each can by:

a) dividing the price of the can by the number of millilitres in the can. The number of mL is usually circled. Do this for each can. The number you get is the unit price.

or

b) Use a consumer cost calculator to do the dividing for you. They are available from:

Food Advisory Division
Canada Department of Agriculture
Sir John Carling Building
Carling Avenue
Ottawa, Ontario

The calculator is easy to use. Find the price of the can on the outside circle. Line up the number of mL in the can on the inside circle with the price on the outside circle. Look where the arrow is pointing. This shows the price.

Try to match what you are cooking with the foods you are demonstrating. For example, if you are showing canned stews, then make a homemade stew in the cooking class, so people can compare the taste and price among them. You may not be able to show some of the store foods in a demonstration. Take the group to the store to look at some foods. It will be an interesting change for people and will give them a chance to look at the other foods in the store and ask questions.

Discussion Questions

Is it always best to buy the larger size? Does your family eat a lot of the food? Do you have enough storage space? Does it spoil fast - it might be better to get just a little bit at a time. Is your family trying out the item for the first time, for example peanut butter. Mayber they won't like it, so buy a small jar first to see if they like it.

IF: your family really likes the item and you use a lot of it and have enough storage space, etc., it is usually better to buy the larger size. It is usually much cheaper and you will save a lot of money on your grocery bills over a period of time.

IF: some items in the store that people use a lot are only available in a very small size - ask the store manager to order the item in a larger size, e.g. canned fruit juice.

IF: some things are not available in the store that people feel they need and want, talk to the manager. Usually he will order in the item if it is possible.

Prices

The prices in the store will stay the same until next sealift. Try to make a really good list of all the prices in the store and the unit prices. You can use these in all your cooking classes. People will soon become aware of what items are good buys and which items are not good buys.

Displays

Drinks: Which do you buy?

Have a display of similar looking - yet different items - for example:

- orange juice - frozen or canned
- orange drink - canned
- Tang
- Kool-aid
- pop

Explain that these are not all the same. Orange Juice is the best, in the can or frozen. Tang or Sun-up is next best. All of these contain Vitamin 'C' - a vitamin important for healthy gums and lining of our throat and stomach. Vitamin 'C' also helps protect the body against infections, like colds. Explain the short lifespan of Vitamin C in Tang once it has been mixed.

Kool-aid and pop are not juice. They have no Vitamin 'C' and they contain a lot of sugar. Try to get people to have jugs of juice or Tang in the refrigerator within easy reach of children. Try to discourage grandparents and relatives from giving your children pop and Kool-aid. Juice and Tang taste good and are better for you.

Understanding Labels - Demonstration

Introduce the group to reading labels on boxes or cans.

The law says that the first item listed on the label must be the one that is present in the largest amount.

Example: Canned pears with 40% sugar syrup - the label will read (most) pears, (second) sugar, water.

The label should show all the ingredients in the box, package or can. Have the group look at the label on a box of cornflakes and compare the ingredients to a box of sugar pops or sugar frosted flakes. Notice that on sugar pops or sugar frosted flakes that sugar is the main ingredient in the cereal. Children and adults do not need a lot of sugar. It leads to cavities and other health problems.

Cost Per Serving - Illustrated Talk

Compare the cost of one serving of cooked regular oatmeal cereal as compared to instant oatmeal that you pour hot water over in a bowl. Instant oatmeal is very fast and convenient, but it costs more than regular oatmeal cereal that takes a little longer to cook.

If you are trying to feed your family well, and save money on groceries, buy the oatmeal that you cook.

As well, people should know that cooked cereal is better for the family than dry cereal like cornflakes. It has more important things in it to keep your body growing and healthy.

Quality of Canned Meats and Fish - Demonstration

Always, if possible, use land foods, like caribou, char, ptarmigan, geese and seal, instead of store meats. Store meats are very expensive and are not as good for you as land foods.

Canned Stews

Buy several brands of canned stews. Find the unit price for each stew (price/mL). Open the canned stews and spoon out the meat and vegetables. Is there a lot of gravy left? Are there a lot of potatoes and vegetables and not much meat? The best stew is the one that tastes good, and has lots of meat and not too much gravy. Sometimes the cheapest stew is the one with the most gravy and the least meat. Let the group look at the stews, taste them and decide which stew they like best. This is a good example of buying food not only for price buy for quality as well. Advise the group, it is not nutritionally wise to buy food if it is cheap, but has little food value. Sometimes it is best to pay a little more money for a food that has more food value. The very cheapest and best way to have stew is to make your own at home. Show the group how to make a good stew. Try finding the total cost of the stew and the number of people it will serve. Compare this cost/serving to the cost/serving of a canned stew. Remember the cost/serving will show the difference in price but quality and flavour are also important.

Canned Hamburgers

Open a can of these and let the class taste them. Find the unit price, that is, the price/g. Make hamburger patties from store hamburger and/or from ground caribou or seal. Which tastes the best? Which costs the least?

Canned Luncheon Meats

Buy one of each kind of luncheon meat. Which meat tastes the best? Which meat costs the least? Which meat would each person buy, considering the cost and the taste? (Each person may choose a different meat, depending on her own tastes and how much money she can afford to spend). Compare the cost/g of luncheon meats to canned hamburgers and stew. Compare the quality - which one do you like the best, considering cost and quality? (Stress that most canned luncheon meats have a lot of fat and are not a really good choice).

Fish

Compare: smoked and canned oysters, shrimp, tuna, salmon, chicken haddie. Oysters, shrimp and crab are - (often the same price as different brands). Some brands are more expensive than others, yet they taste the same. There are different kinds of salmon. Some salmon is very light in colour, others deep pink, almost red in colour. The light pink salmon is much cheaper than the deep pink salmon. Some people like the deep pink salmon because of the colour. Buy several kinds and have the class discuss which one they would buy, considering the cost and the taste. Chicken haddie is made from several kinds of fish put together. It is cheaper than salmon or tuna and tastes good too.

Canned Wieners or Sausages

If there is more than one brand, have the group taste the kinds, discuss the price difference and decide which one they would buy, considering the price and quality.

Canned Wieners and Beans

Check different brands for price and quality. Small cans of wieners and beans are very expensive.

Considerations in Purchasing Other Store Foods

Canned Fruit

It is best to choose a wide variety of fruits for the family. If the family is large, and/or likes a certain kind of fruit, buy the large sized can, because it will be cheaper than buying the small can. Some fruits, such as strawberries, raspberries and blueberries are quite a bit more expensive than other fruits. A person who wants to save money on the food bill will choose the expensive fruits less often.

Canned Vegetables

Just like for fruits, the family should have a variety of vegetables every day. Some brands of vegetables are more expensive than others. Check these brands for quality and price before buying.

Flour, Sugar

If the family uses a lot of these and has enough storage space, buy the large sizes because they are usually the cheapest.

Rice

Five minute rice doubles in volume. Long cooking rice triples in volume. For most foods, the easier and faster it is to cook the more it costs, and the less nutritional value it has. Five minute rice is an example of this.

Examples:

Pie crust mix is quick to make but costs more than making your own. Cake mixes are quick and easy to make but cost more than making your own. Some Angel Food Cake mixes are cheaper to use.

How much time do the people have to prepare meals at home? If they can plan ahead and can allow enough time to prepare meals, then they should make things like regular rice, or oatmeal, that take longer to cook but which cost less and often taste better and are more healthy for the family. Sometimes it is nice to have some easy-to-prepare foods on hand, for those times when the person is rushed to cook for the family.

Potatoes

Usually there is only one brand of instant mashed potatoes available, but there are several sizes. If the family eats a lot of potatoes, and there is enough storage space, buy the largest size. May need to translate directions for mixes.

Lard and Shortening

Shortening is made from vegetable oils and is usually more expensive than lard, which is made from animal fat. Scientists have found that vegetable oil is better for a person's heart than is animal fat. Discuss the price difference and the nutritional controversy over animal fat in lard and vegetable oil in shortening. Perhaps you could invite the nurse, or home management consultant to talk about the food people eat and heart disease.

Butter vs. Margarine

Margarine, just like shortening, is made from vegetable oil. Butter like lard is made from animal fat. To help prevent heart disease, people should use less animal fats and more vegetable oils. Margarine is usually a little cheaper than butter. It would be good for people to start using margarine some of the time instead of butter or lard. Be sure the margarine is not made from cocoanut oil.

Puddings

The cheapest pudding is the one a person makes from scratch. Some people have only made puddings from mixes. A recipe for a vanilla pudding is on the back of the cornstarch package. Puddings from mixes are quick to make and do not cost a lot. They are a good way for the family to get more milk in their diet. Puddings in cans are very expensive, especially those in very small cans. Most people have enough time to make puddings, either from scratch or from a mix.

Cake Mixes

The cheapest cake is the one you make from scratch, but some people prefer to make a cake from a mix. Angel food cakes have the eggs already in the packages. These cakes are the most convenient to make if there are no eggs in the settlement.

Tea and Coffee

Loose tea is usually the cheapest. If the family drinks a lot of tea, and likes using tea bags, they should buy the 100 bag or larger, if available. Orange Pekoe tea is the better quality of tea, usually found in a box rather than a bag. This tea is much more expensive than regular tea bags.

Some people are very fussy about the coffee they buy. Different brands and different kinds of coffee do have different flavours. Many people do not mind paying more for a kind or brand of coffee they enjoy. There are four kinds of coffee:

1. Ground coffee: Made from coffee beans. Use it in a percolator or other kind of coffee maker.
2. Regular instant coffee: Is the cheapest kind of instant coffee.
3. Freeze dried coffee: Is made a special way to taste more like percolated coffee. It is more expensive than regular instant coffee.
4. De-caffeinated coffee: (One brand is called "Sanka"). Some stores do not have this kind of coffee. Some people find that coffee keeps them awake at night. De-caffeinated coffee will not keep you awake at night.

People who buy, or "consumers", can help themselves by knowing what is the best food to buy and just buying these foods. The Bay manager or the Co-op manager will be influenced by which foods they buy and which foods they leave on the shelf.

NUTRITION AND FAMILY PLANNING

This article has been selected from the Illinois Teacher of Home Economics as a resource for teaching ideas in nutrition and family planning. It could be used as a resource for teaching mothers, during pre-natal classes or in similar situations.

CONCEPTS AND APPROACHES FOR HOME ECONOMICS TEACHERS

Catherine Rand, M.N.S., R.P. Dt.,
Senior Nutrition Consultant,
Ontario Ministry of Health,
Toronto, Ontario.

Nutrition and family planning - what's the connection? It is a commonality of broad goals and target population but, more importantly, the impact they can have on one another's specific concerns.

Both nutrition and family planning programs have as their ultimate goal the improvement of the quality of life. Their efforts focus on improving the physical, emotional and social health of individuals and families. Their programs frequently reach for the same target population, women in their childbearing years and young families. Thus, the success or failure of either program ultimately has an impact on the success or failure of the other. Thus combining both programs facilitates the attainment of their common goal.

This paper focuses on:
- The role nutrition can play in enhancing family planning goals.
- Nutrition, family planning and the adolescent.
- Potential approaches for home economics educators.

NUTRITION AS AN ENHANCER OF FAMILY PLANNING GOALS

From a world perspective, the close relationship between nutrition and family planning manifests itself in the food population crises. Berg (1) discusses the interaction between the need for parents to have many children in developing countries, the influence of infant mortality rates and the relationship between nutrition and family size. The situation has been succinctly phrased by Gopalan:

> Unless nutritional status is improved so that the desired family size can be achieved with minimum number of pregnancies, family planning programs will not be accepted; unless family planning is accepted and practised, nutritional improvement will be difficult.

Leaving the world perspective and looking at the individual, there may be several different reasons why a woman would pursue family planning. Her personal objective may be to:

- Prevent pregnancy, on a long-term basis, or
- Postpone pregnancy temporarily (i.e. to space children or to plan the pregnancy for a specific time), or
- Overcome infertility, or
- Decrease the risk of pregnancy associated with some medical condition.

In each of these cases, nutrition may play a role in assisting the individual in her personal family planning objective.

PREVENTING PREGNANCY

An increasing body of knowledge is accumulating which indicates a relationship between nutrition and two methods of contraception.

The oral contraceptive pill has been associated with weight gain and with altering the metabolism of some minerals and vitamins, as reviewed elsewhere (6,9). Specifically, the pill is associated with an increased need for Vitamin B_6 (pyridoxine), folic acid, Vitamin C and perhaps riboflavin and zinc. On the other hand, it may enhance iron and calcium status. There has been a suggestion that some of the side effects of the pill, such as depression, may be due to the effect that the pill has on nutrient metabolism (4). Such side effects as depression, and weight gain are frequently cited as reasons for discontinuing the pill.

The IUD may have nutritional side effects if bleeding occurs, thus impairing iron status.

When weight gain, depression, bleeding, etc. cause a woman to discontinue effective methods of contraception, the chance of an unwanted pregnancy increases. Nutrition counselling related to the mentioned side effects may thus become a means of ensuring that effective contraception is continued.

POSTPONING PREGNANCY TEMPORARILY

Family planning pursued for the purpose of child spacing or planning a pregnancy for a specific time allows an opportunity for the future mother to improve her nutritional status in preparation for pregnancy.

Too often, "prenatal nutrition" and "nutrition and pregnancy" have been narrowly interpreted to mean "nutrition during pregnancy". The importance of incorporating nutrition education into programs which reach women prior to conception and between pregnancies is becoming increasingly understood. A Report of a PAHO Technical Group Meeting concludes that:

> Intervals between pregnancies (birth to conception) of less than 24 months are associated with definite impairment of reproductive efficiency and, almost certainly, with a mounting incidence of maternal malnutrition.[2]

Several pregnancies in rapid succession may impair the mother's health and vitality whereas successful contraception between pregnancies will allow time for the replenishment of the mother's nutrient stores.

Stearns (8) cites studies indicating the positive influence of good nutritional status prior to conception on the outcome of pregnancy.

Friesan (2) acknowledges that by the time pregnancy is confirmed, the most critical stage in the development of the fetus has already passed. Thus, as part of his family planning advice, he recommends that three months prior to discontinuing contraception, women have a pre-pregnancy check-up which, among other things, includes dietary advice. If the woman has been on the pill and has reduced stores of some nutrients due to the metabolic effects of the pill or to constant dieting, she may be less prepared for pregnancy.

A lifetime of poor nutrition cannot be compensated for by improving diet just during pregnancy, especially since the pregnancy itself imposes additional nutrient demands. To ensure that the mother enters pregnancy well nourished, the time during which pregnancy is being temporarily postponed is an ideal time for improving food habits.

OVERCOMING INFERTILITY

Nutrition may play another role in family planning consultations. Counselling on weight problems (over- or under-weight) may be indicated before extensive fertility tests are undertaken (3).

Decreasing the Risk of Pregnancy Associated with Some Medical Problems

Some women seek family planning advice because of a desire to have children but, due to a medical condition, they would have a high risk pregnancy. Nutrition counselling may assist women to have a safer pregnancy if they are in poor nutritional status, extremely obese, anemic, diabetic, over forty years of age, or hypertensive.

Girls who become pregnant before 17 years of age are at risk both biologically and psychologically, as discussed in detail in Maternal Nutrition and the Course of Pregnancy (5) and summarized elsewhere (7).

When the adolescent's own growth and pregnancy must compete for nutrients both the young mother and the infant may suffer. The mother may have decreased growth potential while the actual risk of pregnancy may increase. Low birth weights and the consequent increase in neonatal and perinatal mortally are more common in infants born to adolescent girls. Toxemia and iron deficiency anemia also appear to occur more frequently.

Psychologically, the adolescent is at risk because she is at a difficult stage of her own personal psychological development. The additional social, familial, emotional, educational, economic and health factors associated with early pregnancy could affect her ability to be a successful parent and jeopardize her future well-being.

For the young adolescent the most important family planning goal may be successful contraception as outlined earlier. For the older adolescent, the goal may be to plan a family for the near future and to enter pregnancy well-nourished.

POTENTIAL APPROACHES FOR TEACHERS

Home economics teachers have a golden opportunity to further the goals of nutrition and family planning programs. Their audience is at a stage where they are exerting independence over their own eating habits. Effective nutrition education can thus help establish the kind of eating habits which will prepare young women for pregnancy and which will prepare future patents, in turn, to set good examples for their children.

Nutrition Education for Both Boys and Girls

Since it is unrealistic to consider the nutrition of individuals in isolation from their family groups and social environment, nutrition education directed only to girls will fall short of its potential contribution. Husbands' eating habits influence what wives will prepare; many husbands do the shopping or a share of it; fathers' eating habits will set examples for their children to adopt. Just as men are being encouraged to take more responsibility for family planning and child rearing, so they should for family nutrition as well.

Home economics educators can strive to incorporate boys into nutrition education programs. They can provide resources to other teachers in the school who, in teaching health, physical education or family living, should include nutrition as a logical component.

Assess the Nutrition Component of Home Economics - Is it There?

Home economics teachers can take a close critical look at their curricula. Is nutrition education present as a significant component or is it an incidental, with food preparation the key focus?

Effective nutrition education requires a commitment to constant updating of nutrition information and concepts. If nutrition is to be something more than an incidental to food preparation, a change in school curricula and probably education of home economics teachers will be needed.

Make Nutrition Education Timely and Flexible

Nutrition education, regardless of the goal or motive for providing it, should be kept timely and flexible if it is to capture the interest of the target group and appear relevant for the groups' lifestyle and values.

Although of historical interest, the discovery of vitamins and the diseases they cured will have less impact on changing eating habits than will addressing the nutrition issues and interests of today. Nutrition educators today have to be able to adapt the science of nutrition to issues such as:

- The snacking lifestyle - "How can I eat well on the run? I don't have time for three square meals a day."
- The fitness interest - "Will nutrition help me to be more fit?"
- Nutrition for athletes - "Do I need special foods while I'm in training?"
- Food Economics - "I won't have much money at university next year. What should I buy?"
- Vegetarianism - "I want to become a vegetarian. How do I do it and ensure that I get all the nutrients I need?"
- Weight control - "How can I keep excess weight off without having to go on diets all the time?"

The overriding attitude of the nutrition educator can influence the appeal of nutrition for students. Is it an approach based on "eat it because you need it for good health"? Or is it a philosophy which conveys "eating good food is fun", and health, not an end in itself, is a means of ensuring that we have the vitality and zeal to accomplish the things in life which are important to us.

SUMMARY

The interrelationship between family planning and nutrition goals provide yet another opportunity and incentive for nutrition education. Home economics teachers are in an excellent position to promote nutrition learning opportunities for tomorrow's parents. Regardless of the motive for promoting such opportunities, the approach must capture the imagination of the learners and be flexible enough to fit in with their own lifestyles and values.

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SECTION VIII

MEDIA POINTERS AND RESOURCES

NUTRITION IN THE NEWS

MEDIA — A COMMUNICATION TOOL

People with a personal and/or a professional interest in nutrition education can improve the flow of information about nutrition by using the media. Using established channels of communication like radio, television and newspapers is a sensible way to reach the most people for the least amount of effort and expense.

Here are some tips and sample media releases to help you understand how to put nutrition in the news.

The Press

A newspaper is a business. To establish rapport with media people be "business-like". That means develp a healthy respect for the conditions under which they work - deadlines, limited space for stories, and the need to produce an interesting, informative paper that will turn a profit.

Your News Release

Your publicity contact with the press is most often in the form of a written release. It should be in newspaper style if you want editors to recognize you as an accurate, reliable, helpful news source.

Newspaper style means stating the facts - WHO, WHAT, WHEN, WHERE AND WHY - in the first few sentences, called the "lead". Then go on with the details of the story. Generally the lead is the most important part of the story because it "sells" it to the editor who must scan hundreds of releases daily, deciding which to use in the limited amount of space that is available.

Editors can't allot much space to each news item so be brief and to the point. Use short words, short sentences, short paragraphs. Short paragraphs will help you keep your story to the average length of one or two double-spaced typewritten pages.

More tips on news style:

- Avoid adjectives. Remember to be objective. There is no place for opinion in a news story.

- If there is a statement of opinion, it should be paraphrased or quoted, and attributed to the source of the information.
- Be specific. Don't generalize and don't exaggerate.
- Avoid prefixes to names that indicate marital status. First reference should include a person's title (if any) and given name. All later references in a news release should include last name only. First names alone are not appropriate for adults.

Once your story has been written, re-read and given your final nod of approval, it's ready to be typed. Handwritten copy invites errors. Type your story double-spaced on one side of standard 8½ x 11" white paper. Never send carbon copies. Keep one for your files in case there is a question about what appeared in print as opposed to what you actually submitted to the newspaper. If you must send the same release to a number of papers, mimeograph or photocopy it. The the editor will know that others are getting the release and can re-write it for individuality.

Single-space your name, the name of your group, address and YOUR daytime phone number in the upper left hand corner of the first typed page. Include the day's date and the release date at the top of the page, distinct from the story. If possible type "FOR IMMEDIATE RELEASE" which means that the editor can use the story at once. When asking for a specific release date say "RELEASE AFTER 3:00 P.M., THURSDAY, JULY 18".

Begin typing your story at least one third of the way down the page. The editor needs space to pencil in instructions or write the headline.

If the story runs more than one page, write "more" at the bottom of each page except the last, and "add 1," "add 2," etc., with your name and phone number at the top of each succeeding page.

Your Best Bet

Every area has a number of community newspapers. Only a few are published daily. Most appear once a week and some are printed bi-weekly or even monthly. Community newspapers use very little national or international news. They depend on people like you for a good percentage of their copy. It's in the community press that you stand your best chance of getting a story printed.

The key word is "local." A weekly newspaper thrives on local names and stories of local interest. The editor is concerned with everything that affects the communities in which the paper circulates. Sometimes an item that wouldn't be newsworthy to a big city daily will be welcomed by the weekly press because it mentions local people. It's here that names are news.

Be sure then, to indicate that the people mentioned in your release live in the area. You can do this by listing them with their local address at the bottom of the release, "John Doe lives on Collins Street in Oakland", then underlining the name in the release so that the editor knows at a glance that the story is about local people.

Most weekly newspapers require copy one week before the day of publication. This really requires thinking ahead.

Pictures in the Press

Don't overlook the opportunity for photos in metro or community newspapers. Sometimes a photo with caption is more effective than a news release if the photo itself tells a story.

Photo requirements are different for every newspaper. Metro papers usually have a staff photographer who will take a photo to accompany a story they are planning. If you can afford to have photos taken on your own and prints made to distribute along with your release or caption, that's also acceptable. They should be good quality 5" x 7" or 8" x 10", black and white, glossy prints. Community papers are more likely to use such photos than the big papers who prefer to do their own photography.

To Send a Photo

If you're submitting a photograph to a newspaper, type the caption, which includes identification of people in the photo from left to right, halfway down the page of plain white paper. Put paste or tape on the upper half so that the back of the photo can be stuck to it. The caption will then read directly under the picture, and be folded up over the picture for mailing. Place the photo in an envelope between two pieces of cardboard or some form of stiffener so that it will not be bent or crushed in the mail. Never use paper clips on photos. Never write on the back of a photo with a pointed instrument that will make impressions on the picture. Mark "Photo Enclosed" on the envelope.

The Broadcast Media

Like newspapers, radio and television stations use both news and feature material. But competition for broadcast coverage is even more intense than publicity in the print media. Newspapers have a limited amount of space, but they can add pages. The broadcast media are limited by license to a specified amount of air time. Needless to say you should think through your publicity plans for radio and television, both prime channels for communication with the community.

Follow the same three steps to obtaining good publicity on radio and television that were outlined for newspapers:

- Decide if you have a potential news or feature story;
- Identify the audience you want to reach with that story;
- Get to know the media that reach that audience.

Every Second Counts

News stories worthy of newspaper coverage can be rewritten for radio and T.V. Edit your story for the broadcast media. News on the air rarely goes into detail. Most of the stories used on radio and T.V. newscasts are brief - usually no more than one minute long. That's about 15 typewritten lines.

Be sure to write the way you talk. Broadcasters read the news aloud, so write your news release in a conversational style using simple words and uncomplicated sentences. If you use proper names, a foreign word, or one that's difficult to pronounce, put the phonetic spelling directly following the word in parenthesis.

Type the release, double-spaced on 8½ x 11" white paper with the same contact information you put on your news release. Some people also prefer to type broadcast releases in all capital letters so that they are easy to read. Mail releases to news directors at local radio and television stations.

Public Service Opportunities

In recent years there has been increasing interest in assuring that radio and television programming be responsive to the needs of the community. Non-profit groups, social or civic, are sometimes eligible for what is called public service air time. THAT'S YOU. If you represent a non-profit group and your message is directly related to the activities of your group, it may be eligible for public service time.

Think through the same three steps suggested here for all publicity:

- Identify the information you want to communicate;
- Pinpoint the audience you want to reach with that message;
- Direct the message to the media that reach that audience.

Public service opportunities offered by your local media might include:

- Public service announcements;
- Free speech messages;
- Public affairs programs;
- Community calendars;
- Rebuttals to station editorials;
- News programs.

Actual days and times of public service broadcasts are determined by the station on the basis of interest, immediacy, balance and variety. Stations receive numerous public service announcements daily, so advance planning pays off.

Public Service Announcements for Radio

Public service announcements include the same information as a basic release - WHO, WHAT, WHERE, WHEN, AND WHY -- plus important names and sometimes a telephone number. This information is submitted to stations in the form of a written release. When preparing a public service announcement (P.S.A.) keep your sentences short, simple and conversational. Words are for the ear not the eye. Be accurate, brief and factual. At the end of a P.S.A., you may repeat the telephone number, dates, or locations, for better recall by the listener.

Once copy is written, read your copy out loud. Time it carefully. Re-write to eliminate rough spots and stumbling words, then read aloud and time it again.

Reading Time and Word Count of Public Service Announcements

10 seconds - 25 words
20 seconds - 40 words
30 seconds - 80 words
60 seconds - 160 words

When your message is complete, type copy, double-spaced, on 8½" x 11" plain, white paper. If you are preparing announcements of different length, type each one on a separate page. Send a copy to the public service director at each station. Four weeks ahead is not too early.

Some stations offer limited recording services or you may have other access to equipment. Professional recording equipment must be used if you submit a tape-recorded public service announcement. Always include typed copy of your message when you submit a tape.

A few stations may invite you to record your message in their studios. If so, prepare written copy as described above. Practice reading aloud at home. Be natural when you record. Be yourself. Be careful of your reading time.

Type your message on 8½" x 11" white paper, double-spaced with your name, address and telephone number at the top. Mail it to the station of your choice in care of the public service director.

Messages are selected by stations on the basis of community interest, balance, immediacy, variety. If your message is selected for broadcast, you will be invited to come to the studio to record it.

Community Calendars

As a free public service, many radio and television stations feature brief announcements that describe special events of general community interest. Such events as seminars, lectures, exhibits, etc. that are sponsored by non-profit community groups can be listed on community calendars or billboards.

Calendar listings are normally limited to the following basic facts:

- Name of the sponsoring group;
- Description or name of activity;
- Date, time, and location of the event;
- Brief statement of the purpose of the event;
- Ticket or program information (telephone number, if needed).

This information should be presented in the same format as a public service announcement. It's also helpful to include a brief description of the nature and purpose of your organization.

Attach the descriptive statement to your announcement and mail both to the public service director, attention: Community Calendar.

This information has been selected
from the publication "Nutrition in
the News, A Communications Manual."

SECTION IX

SAMPLE MEDIA RELEASES

SAMPLE NEWS RELEASES
NEWSPAPER OR RADIO

SNACK IDEAS

Do you enjoy eating snacks instead of three meals a day or perhaps in-between meals? With today's lifestyle many people enjoy a little something with their tea or coffee break. It's important to choose nutritious foods for these small meals. And remember too many snacks can add extra kilograms of fat so select low-calorie foods if you tend to be overweight. It's especially important to remember your dental health. Sweet foods cause dental decay and eventually loss of your teeth.

Entertaining with snacks or just filling that hungry feeling means time to choose good foods. Here are some snack ideas.

Raw vegetables like celery, carrots or turnips are crunchy and tasty. Fruit - either fresh or dried provides a healthy snack. Raisins and peanuts are a good treat for children. Pilot biscuits, bannock or whole wheat bread are tasty especially as a sandwich with egg, peanut butter or meat. Caribou, seal, fish are also tasty treats - and what's more fun to chew on than a piece of dry meat?

Cheese and crackers or cereal and milk are healthy snacks any time of the day. Of course fruit juice or milk drinks are better than pop or sugar-sweetened drinks.

Snacking isn't a new idea. In the past, northern people used to snack all day and eat only one meal. They only had nutritious land foods then, but now with more choice of foods, it's important to choose the best foods.

CANADA'S FOOD GUIDE

Canada's Food Guide is a plan or guide to show which foods you need to stay healthy. The guide says to choose food from four food groups every day.

Choose foods from the milk group to make strong teeth and bones. The foods in the meat and fish group will help make strong muscles and good red blood. Fruits and vegetables help your body to fight infection and also keep eyes and skin healthy. The bannock, bread and cereals group give energy to work and play. Each day choose different foods from all the food groups.

You can get a copy of the food guide from your health nurse or home management educator. Canada's Food Guide tells you how much of each type of food you need. It will help you feed your family better so they will grow and remain healthy.

IRON IN YOUR DIET

What do I need iron for, you may ask yourself? Iron is a very important mineral in the body since it helps the blood to carry oxygen. The oxygen is needed to burn food and provide energy. Without enough iron a person appears pale and listless. They feel very tired and never have a good appetite. They may lose weight and also be very irritable.

Poor food habits are one of the causes of anemia or lack of iron in the body. It is especially important for growing children, teenage girls and pregnant women to eat iron rich foods. However, iron is required by everyone at all stages of life.

Up Your Iron Intake

Eat good red meats especially liver and wild game such as seal or caribou to get a daily supply of iron. Other foods such as green leafy vegetables and potatoes will add iron to the diet. Whole grain bread and enriched cereals are an additional source of iron. Dried foods such as peas or beans, apricots, prunes and raisins all contain iron. Egg yolk is a very good source of iron especially for babies or young children.

Using a cast-iron frying pan or pot for cooking is an easy way to increase your iron intake. Be sure your family gets enough foods containing this very important nutrient.

FROZEN TREATS FOR TOTS

Do popsicles and frozen treats tempt your children during the warm summer weather? Then why not try making some frozen treats? They're less expensive, more nutritious and even tastier than the commercial variety.

Commercial treats contain only sugar, artificial coloring and flavoring, but homemade treats can be made from natural coloring, vitamins and minerals. And these tasty homemade treats will cost about one third the store price for a frozen treat.

Here's a recipe for Frozen Treats:

Equipment : Individual ice cube trays or small molds, a mixing bowl, a jug and a spoon. Small sticks are optional.

Indgredients : 100% pure reconstituted frozen juice or tinned fruit juice (unsweetened).

Preparation : Pour the juice into an ice-cube tray or mold. Place in the freezer. When half frozen, add raisins, cherries, small pieces of fruit or walnuts. Insert sticks and freeze until hard.

TRY A POCKET BREAKFAST?

Are you one of those people who never gets up in time for breakfast? Do your children leave for school before they've had something to eat?

How about having a pocket breakfast - one you carry with you to work or school? They will help you get the necessary nutrition and the energy you need to start the day.

What's In a Pocket Breakfast?

Include a piece of fruit, some type of bread and a source of protein. These are some types of food to try:

Fruit	An orange, package of raisins, prunes, apple or berries.
Bread	Muffin, bannock, graham wafer or date loaf.

Protein Source	A piece of cheese, or bread spread with peanut butter or cheese. A piece of dry meat.

Pocket breakfasts require some planning ahead. Try getting everything ready the night before and leaving it in the refrigerator. In the morning, all you have to do is take it out and you're on your way. Another quick trick is to make a batch of bran muffins or a loaf of date bread, wrap each one individually and freeze them - they're ready when you are.

PHYSICAL FITNESS ....? WHO NEEDS IT?

Who Needs it? We All Do!

It's incredible! Most people take better care of their car or skidoo than of their own bodies. Yet there are no trade-ins if they wear themselves out prematurely. They simply have to go half-speed or head for the junk yard.

Are You Fit?

Because fitness is poorly understood, most of us think we have it. In fact, very few Canadians are physically fit. If you think that you are getting enough exercise, then in the last forty-eight hours you probably did some kind of activity that would raise your heart rate to 135 to 150 beats per minute (depending on age) for FIFTEEN MINUTES WITHOUT STOPPING, and you do this at least three times per week.

There Are Many Rewards

A fit person has more bounce and drive, more vigour and vitality. But a fit person also has better resistance to disease and benefits from being sick less often. Fit people can do more work with less effort. They have less accidents due to fatigue. They resist stress better and sleep more soundly.

Of course a physically fit person just feels better because he's healthier and more alert. Physical activity is the best form of preventive medicine and it's available to everyone.

Who Needs Fitness?

Everyone needs fitness - men, women, children, older people, housewives, office workers, hunters, teachers, construction workers, truck drivers.

If you think the problem is someone elses, remind yourself of these points:

If you're like most Canadians, you think you're fit. Statistics show that the odds are 5 to 1 that you're wrong.

If you think running up and down stairs at home or at work keeps you fit - you're wrong.

Haven't got time? Keeping fit takes only an hour a week. That's not even as long as most people spend watching T.V. in one day!

Think it's nobody's business but yours? Wrong again. If the results of a person's decision to be unfit cause illness which result in health care costs that must be shared by all, then it's everybody's business.

SECTION X

SUGGESTED RESOURCES

RELIABLE NUTRITION INFORMATION

Centre for Science in the Public Interest 1757 S. St. N.W. WASHINGTON, D.C. 20009	Pamphlets, posters & reference material. Excellent and colourful, e.g. posters "Breast Milk is Best", and "Eat Whole Grains"
Sunkist Growers Inc. Consumer Services, AV-77 Box 7888 VAN NUYS, California 91409	Pamphlets, posters, films, information on fruits and Vitamin C in particular.
Health Educator, N.W.T. Region Medical Services Health and Welfare Canada 1401 Baker Centre EDMONTON, Alberta.	Pamphlets, books, reports, reference material.
Extension Service U.S. Department of Agriculture Superintendent of Documents Government Printing Office WASHINGTON, D.C. 20402	1) Basic lessons for training extension aids. 2) Meal planning 3) Food needs of family members 4) Key nutrients 5) Food buying 6) Food preparation
March Publishing Co., Inc. 5929 N. Milwaukee Avenue CHICAGO, Illinois 60646	A personalized program in "Educating the Patient in the Prevention of Dental Disease".
Co-operative Extension Service Expanded Food & Nutrition Education Prog. University of Maine ORONO, Maine	Nutrition games and ideas.
Co-operative Extension Service University of Alaska FAIRBANKS, Alaska	Alaska Food Choices - Nutrients in your Diet #P-163 - Nutrients in the Traditional Diet #P-162

Information Division Canada Department of Agriculture OTTAWA, Ontario K1A 0C7	Foods, recipes, gardening. Request list of publications.
Education Programs and Evaluation Division Department of Education Government of the N.W.T. YELLOWKNIFE, N.W.T. X1A 2L9	Kids Can Cook (A resource book for teaching nutrition to children)
J.B. Lippincott Company 75 Horner Avenue TORONTO, Ontario	Science Experiments You Can Eat, by Vicki Cobb @$1.95 Food Experiments for Kids

FILMS

DESCRIPTION	AVAILABLE FROM
FS1374A NUTRITIONAL NEEDS OF OUR BODIES B & W 11 min. Cor. 1961 Using photomicrography, laboratory animals, and animation, this film shows how food provides the body's basic needs. The student will learn about four general groups of foods, of all the nutrients which they contain, and what the nutrients supply to the body. The importance of a well-balanced diet to a strong body and good health is stressed. INT/JR/SR.	Regional Resource Centre Department of Education
FS1021B UNDERSTANDING VITAMINS Color 14 min. EBF 1952 Explains what vitamins are, how they work, and why they are necessary for	Regional Resource Centre Department of Education

Description	Available From
good health. Points out natural sources of important vitamins, and reveals the effects on body tissues of a diet lacking in certain vitamins and calls attention to present day research. INT/JR.	
FS405A FOOD THAT BUILDS GOOD HEALTH B & W 11 min. Cor. 1951 The class is shown the relations of good health to the food they eat and what those foods are. As an alternative, they see irritability, lack of energy, and physical weakness as one result of a poor diet. How eating the right foods in the right amounts regularly contributes to building strong, healthy bodies is shown. PRIM/INT.	Regional Resource Centre Department of Education
FS2092B FOOD FOR LIFE Color 22 min. VEC 1968 Perennial. The film compares the food practices and problems of four teen-agers from diverse backgrounds - of Tara, who doesn't get enough to eat; to Karen, who doesn't eat the right things; of Emilio, who doesn't have the right things to eat; and of Bob, who eats too much.	Regional Resource Centre Department of Education

FS1075B WHY WON'T TOMMY EAT?
Color 17 min. NFB 1948

Regional Resource Centre
Department of Education

Dealing with the problem of children who won't eat, this film discusses factors lying behind lack of interest in food. We meet Tommy who should be hungry but just picks at his food. Going back to early babyhood, the film traces how eating habits are formed and how individual likes and dislikes must be considered. Tommy's mother takes him to a doctor who explains that she, not Tommy, is really the problem. We realize that she has been tense, impatient with him from the start. Now it will take painstaking care to build a new atmosphere of cooperation and friendliness, to learn understanding of Tommy's requirements at mealtime, and all the time. SR/AD.

FS1501C MENU
Color 28 Min. NFB 1967

Regional Resource Centre
Department of Education

An excellent treatment on the necessity of an important diet. The background for the film was shot at the R.C.M.P. Academy, using the Police dogs as prime examples of good diet. PRIM/INT/JR.

FS694A MENU PLANNING
B & W 11 min. Cor. 1952

Regional Resource Centre
Department of Education

This film shows how to apply four

tests for good menu planning: Do the meals fit within the budget? Are the foods attractive to the family? Can the foods be prepared in the time available? Do the meals meet the dietary need of the family? JR/SR.

FS1493B COOKING/KITCHEN MANAGEMENT PRINCIPLES

Regional Resource Centre
Department of Education

Color M & L 1967

A) The Kitchen, B) Planning for Efficiency, C) Cleanliness and Safety, D) Setting the Table, E) Washing Up. JR/SR.

FS971A TEETH, THE (Development & Care)

Regional Resource Centre
Department of Education

B & W 11 min. EBF 1944

Explains development and structure of teeth and stresses importance of proper care. Reveals the growth cycle of teeth from embryonic stage through adulthood. Demonstrates the cause of decay and how it can be prevented by eating proper foods, brushing the teeth regularly and properly, and consulting a dentist frequently. Calls attention to organized community program for dental care. PRIM/AD

Description	Available From
FS972B TEETH ARE TO KEEP Color 11 min. NFB 1949 Stresses the elements of teeth care, in an interesting style for the primary level. The film is in clever animation technique, centered about a picnic, and the preparation for it by various members of a family. Strong motivation for proper care of the teeth is built into the film. PRIM/INT.	Regional Resource Centre Department of Education
VITAMINS AND YOU	Vitamin Information Bureau 664 N. Michigan Avenue CHICAGO, Illinois 60611
THE BEGINNING OF LIFE (How a Baby Develops Before Birth) 35 mm. color, 50 frames with printed script to read or adapt. $6.00 each.	
"DO IT YOURSELF PREVENTION" Color, sound, 18 mm. 1973 (16 mm) A leading Canadian peridontist discusses the role of plaque and its contributing factor in peridontal disease and tooth decay. Proper brushing and flossing are demonstrated and use of supplementary materials such as stim-u-dents, piks, disclosing tablets and floss holders illustrated. General interest, all ages.	Canadian Dental Association 1815 Alta Vista Drive OTTAWA, Ontario K1G 3Y6 Free loan from Canadian Dental Association Bureau of Public Information (see above address)

Description	Available From
"THINK ABOUT IT" Color, background music only, 15 min. 1971 16 mm. A contemporary style film produced by dental students which dramatically compares neglect of dental health with pollution of our natural environment. It highlights the advantages of a healthy mouth. (Senior High School/ Young Adults)	Canadian Dental Association 1815 Alta Vista Drive OTTAWA, Ontario K1G 3Y6
F607 FOOD, THE COLOR OF LIFE 16 mm. sound, color film 22½ min. $110.00 Teacher/leader Guide available for 15¢ to explain how to use the film effectively. Objective of the film is to motivate people to select a better diet and to emphasize individual responsibility for intelligent food selection. A theme running through the film is that food, one of natures color-coded secrets, is part of the mysterious self-replenishing cycle by which life continues to perpetuate itself. Designed for adult group.	National Dairy Council 6300 North River Road ROSEMONT, Illinois 60018
F614 WHY DOESN'T CATHY EAT BREAKFAST? 16 mm. sound, color film 4 min. $35.00 Designed to notivate school children to discuss why Cathy and others skip breakfast.	National Dairy Council 6300 North River Road ROSEMONT, Illinois 60018

Description	Available From
F615 WHY NOT SNACK 16 mm. sound, color film 4 min. $35.00	National Dairy Council 6300 North River Road ROSEMONT, Illinois 60018
F609 FEEDING YOUR YOUNG CHILDREN 35 mm. color filmstrip 60 frames $5.00 This filmstrip gives parents of preschool children practical guidelines on building positive attitudes toward food. The small child's development needs are included.	
F604C YOUR FOOD-CHANCE OR CHOICE? F604C (with cassette) F604C (with record) 35 mm. sound, color filmstrip 106 frames This filmstrip is directed to younger teenagers, and senior highschool students. It examines teenagers food choices and how to apply principles of decision making and nutrition knowledge to everyday food practices.	National Dairy Council 6300 North River Road ROSEMONT, Illinois 60018
THE REAL TALKING SINGING ACTION MOVIE From a technical viewpoint, this film is outstanding in its visual and sound aspects. The nutrition concepts are well presented at a fast pace, and the teenager's responsibility for making wise food decisions on his own is emphasized. Sequences on backpacking and skiing and the portrayal of white middle-class values in the film may	Modern Talking Pictures 1875 Leslie Street DON MILLS, Ontario Telephone: 416-444-7347 *FREE (book well in advance)

Description	Available From
reduce its suitability for Northern youth. Suitable for young adolescents.	
JOURNEY THROUGH NUTRITIONLAND 20 min. color An excellent animated film produced by Kellog Nutrition Council. A mixture of humour and drama is expertly utilized to introduce some sophisticated concepts in a reliable, simple and enjoyable manner. The film depicts children who fall asleep while on a camping trip and dream that they are in a Kingdom called Nutritionland.	Association Films 333 Adelaide Street W. TORONTO, Ontario. Telephone: 416-362-2501 *FREE (loan of film)
EAT, DRINK AND BE MARY (1975) Purchase $315.00 Rental $ 31.00 (for three days) 21 mins. Shoppers, cooks, kids and critics vent their views on our eating habits and on processed foods which now make up much of our diet. The nutritional losses from processing and the refining of grain and rice are explored. The reasons for increased use of food additives as nitrites and fool colourings are examined. A sour look is taken at the high sugar content in foods, especially breakfast cereals. The role of advertising in changing our food habits	Gordon Watt Films 865 Sheppard Avenue W., DOWNSVIEW, Ontario M3H 2T4 Telephone: 416-291-9321

Description	Available From
is dramatically illustrated. The film encourages a good, basic diet containing a high proportion of unprocessed, natural foods.	
THE EATING FEEL GOOD MOVIE (1974) Purchase $100.00 Rental $ 10.00 (for three days) 6 mins. The pictures, the voices, the songs of this film are a kaleidoscope of joy. Food becomes a visual delight and eating is fun from the opening moment when children arrive for a dress-up "tea party". Despite the affective emphasis, food groups are clearly shown. Suitable for primary grade children.	Gordon Watt Films 865 Sheppard Avenue W. DOWNSVIEW, Ontario M3H 2T4 Telephone: 416-291-9321
THE WHOLE BODY MANUAL (1976) Purchase $295.00 Rental $ 29.50 (per day) 20 mins. "The Whole Body Manual" film is an entertaining and imaginative look at food, nutrition, and fitness that is done in a zesty, youthful style. Made for the Ontario Milk Marketing Board it avoids "straight factual information" and stresses a positive, healthy balance between what you eat and what you do. Suitable for adolescents.	Mr. Mitch Woolrich Viking Films Limited 525 Denison Street MARKHAM, Ontario L3R 1B8 Telephone: 416-495-0522

Description	Available From
EATING ON THE RUN (1975) Purchase $250.00 Rental $ 25.00 (for two days) 15½ mins. An excellent, lighthearted and positive approach to eating nutritious meals and snacks while on the move. Practical suggestions for nutritious breakfasts, lunches and snacks are included. Suitable for adolescents to adults.	Educational Film Distributors Ltd. 285 Lesmill Road DON MILLS, Ontario M3B 2V1 Telephone: 416-447-9181
FAD DIET CIRCUS (1975) 14. min. Purchase $200.00 Rental $ 20.00 This film compares the results of two types of diets and effectively shows that you can try diets to lose weight but the sure and healthful way is a nutritionally balanced low calorie diet. The film also shows that an increase in activity is helpful. The film is well done giving a good critique of Dr. Atkin's Diet.	Marlin Motion Pictures 47 Lakeshore Road E. PORT CREDIT, Ontario L5G 1C9 Telephone: 416-278-5235
FOR TOMORROW WE SHALL DIET (1976) Purchase $350.00 Rental $ 35.00 (for three days) 24 mins. A reliable, creative film dealing with weight control. The film follows a young woman who successfully loses weight through relearning eating habits while eating a low calorie,	Gordon Watt Films 865 Sheppard Avenue W., DOWNSVIEW, Ontario M3H 2T4 Telephone: 416-291-9321

Description	Available From
balanced, diet. The film also discusses the energy balance relationship and the factors predisposing the population to overweight. Suitable for senior High School students and adults.	
HEART SWEET HEART (1972) Purchase $161.00 13 mins. An enjoyable, animated, musical film, HEART SWEET HEART depicts the life of a man who eats, drinks, and smokes too much and doesn't exercise at all until he has a heart attack. The happy ending portrays a man who aids his recovery by adopting healthful dietary and lifestyle habits. Suitable for adolescents to adults.	Ontario Heart Foundation 310 Davenport Road TORONTO, Ontario M5R 3K2 Telephone: 416-962-3600 *FREE rental
PHYSICAL FITNESS AND FOOD HEALTH (1974) Purchase $175.00 Rental $ 20.00 15 mins. A delightful, animated film illustrating how mechanization has contributed to the population's present level of physical fitness and what can be done to improve the situation. Suitable for adolescents to adults.	Magic Lantern Film Distributors 444 Pearl Street BURLINGTON, Ontario L7R 2N1 Telephone: 416-681-0665

Description	Available From
PHYSICAL FITNESS - A NEW PERSPECTIVE (1975) Purchase $165.00 Rental $ 15.00 10 mins. This excellent, light hearted, animated film takes a serious look at the effects of urban lifestyles on physical fitness. A rural family, displaced from their farm by the advance of mechanization, move to the city where their physical condition visibly deteriorates. A medical program on television opens their eyes to the positive aspects of being physically fit, and the simple ways to increase everyday activity without disrupting one's normal daily routine. Suitable for adolescent to adults.	Marlin Motion Pictures Ltd. 47 Lakeshore Rd. E. PORT CREDIT, Ontario L5G 1C9 Telephone: 416-278-5235
RUN FOR YOUR LIFE (1975) Purchase $210.00 Rental $ 20.00 15 mins. In this film, a group of high school "athletes" participate in a fitness experiment. Once evaluated by Dr. Kavanagh, a noted sports physician, each student is started on a three month training program that includes running and a variety of other endurance sports. The athletes are then re-evaluated. This experiment is	Marlin Motion Pictures Ltd. 47 Lakeshore Rd. E. PORT CREDIT, Ontario L5G 1C9 Telephone: 416-278-5235

Description	Available From
blended with the story of Herman Robers, a thirty-two year-old man who, three years earlier at age twenty-nine, had a heart attack. Now he RUNS MARATHONS. As he runs, Herman recalls the aspects of his earlier lifestyle that probably contributed to his heart attack. This film emphasizes the role of teenage lifestyles in the prevention of cardiovascular disease. Suitable for adolescents to adults.	
SNACKING - GARBAGE IN YOUR GUT (1975) Purchase $200.00 Rental $ 20.00 15 mins. Four Junior high school students play a "spying game" on selected classmates to study their snacking habits. The amateur sleuths report to the class typical intakes of high sugar, high-fat snacks. While this may be an effective consciousness-raising technique, it also tends to victimize the subjects under scrutiny and might be considered a questionable educational technique. Class discussion increases student awareness of their eating habits and the prevalence of "junk foods" in the teen diet. The class visits a research lab where the food value of typical snack foods such as soft drinks and potato chips	Marlin Motion Pictures 47 Lakeshore Rd. E. PORT CREDIT, Ontario L5G 1C9 Telephone: 416-278-5235

Description	Available From
is discussed along with an assessment of nutritional status of teens. Nutritious foods are substituted for poor snack and lunch choices and the food value of these foods are discussed.	
SNACKS COUNT TOO (1975) Purchase $175.00 Rental $ 20.00 10 mins. The fact that snack food calories count in the day's dietary intake is forcefully pointed out. High sugar and high salt snack foods are discussed. The social aspects of snacking are considered, practical guidelines for snacking are included and many examples of nutritious snacks are shown. Suitable for intermediate and high school grade levels.	Magic Lantern Film Distributors 444 Pearl Street BURLINGTON, Ontario L7R 2N1 Telephone: 416-681-0665
WEIGHT CONTROL: JUST A STEP AWAY (1975) Purchase $185.00 Rental $ 20.00 12 mins. An experimental program in which volunteers attempt to lose weight by one of three different methods is the focus of this film. One group adjusts diet only, cutting down on servings and eliminating most sugar; a second group	Marlin Motion Pictures 47 Lakeshore Rd. E. PORT CREDIT, Ontario L5G 1C9 Telephone: 416-278-5235

Description	Available From
increases activity only; and a third group, which demonstrates the greatest average weight loss, increases activity while on a low calorie diet. The effect of mechanization upon activity in modern society is strongly made. Little information is given on caloric values of foods, and detailed follow-up discussion on food values and selection would be necessary to help a lay audience effect a satisfactory weight reduction diet. The film focuses mainly on adults, although it is recommended for junior high to adult level.	
WHY NUTRITION (1974) Purchase approximately $145.00 A film designed to promote positive attitudes in preschool age children to encouraging day care centre operators to include nutrition education activities in their programs. Suggested Audience: day care centre staff, preschool teachers, co-op preschool parents groups, students of child care classes, kindergarten teachers.	B.C. Nutrition Services Health Branch Parliament Buildings VICTORIA, British Columbia V8V 1X4

FILMSTRIPS

FOOD AS CHILDREN SEE IT (1974)
$11.00 filmstrip and record
15 mins.
This filmstrip explores the meaning of food as viewed by children. It emphasizes that preschool children want to be healthy with bright eyes, shiny hair and lots of energy - and that's what good nutrition is all about.

General Mills Film Centre
9200 Film Centre
9200 Wayzata Blvd.
MINNEAPOLIS 55440
U.S.A.

INSIDE MY MOM (1975)
$10.00 filmstrip and cassette
$15.00 slides and cassette
8 mins.
An excellent and entertaining filmstrip that focuses on the importance of nutrition during pregnancy. The narrator is a cartoon fetus who indicates clearly the effects of his mother's diet on his growth and development. Topics including weight gain, fetal brain development, fad diets, regular visits to the doctor, important nutrients and avoidance of high calorie - low nutrient foods are discussed. This filmstrip would be an excellent introduction to prenatal nutrition for adolescents and parents-to-be.

Supply Division
National Foundation
March of Dimes
P.O. Box 2000
WHITE PLAINS, N.Y.

*JUST A LITTLE OUT OF SHAPE (1974) $22.95 filmstrip and cassette $37.95 slides and cassette Discusses basic weight control concepts, hazards of obesity, the need for increased activity and some basic misconceptions.	Professional Health Media Services P.O. Box 922 LOMA LINDA, California 92354, U.S.A.
*LET'S SHAPE UP (1974) $22.95 filmstrip and cassette $37.95 slides and cassette This filmstrip emphasizes increasing activity in conjunction with moderate food intake for weight control. Suitable for adults.	Professional Health Media Services P.O. Box 922 LOMA LINDA, California 92354, U.S.A.

*The above are only some of the many filmstrips available.

VIDEOTAPES

Description	Available From
FEEDING THE YOUNG CHILD (1974) Purchase $90.00 Rental $20.00 (for two weeks) 22 mins. This videotape discusses food needs of the infant for growth and development and common misconception about infant feeding and the development of food habits in young children, as affected by social and psychological factors. Dr. Donald Hill, a pediatrician, discusses the advantages of breast feeding, whether an infant can	Division of Instructional Media Services Room 2360 Medical Services University of Toronto TORONTO, Ontario M5S 1A8 Attention: Jan Dymond Telephone: 416-978-6302

Description	Available From
be overfed, and the implications of overfeeding and obesity in childhood for adult obesity. Catherine Rand, a nutritionist, discusses food meanings and the development of good food habits in children. A group of mothers also discusses some problems of feeding children. Audience: prenatal and postnatal mothers, mothers of young children, educators for classes of nutrition in the life cycle, child-care workers, students in early childhood education. *Available in 1" videotape and 3/4" sony video-cassette.	

RELIABLE NUTRITION INFORMATION AGENCIES

General - pamphlets, posters, films

Canadian Dairy Food Service Bureau 30 Eglinton Ave. E. TORONTO, Ontario M4P 1B6	Booklets, folders, posters, reference material, teaching aids. Request a catalogue and order form.
Vitamin Information Bureau 664 N. Michigan Avenue CHICAGO, Illinois 60611	Posters, films, pamphlets Request order form for educational materials.
General Foods Kitchens P.O. Box 4019 Terminal "A" TORONTO, Ontario. M5W 1V6	Pamphlets, posters recommended (also recipes using their brands and products - some of which are not nutritious)

Standard Brands Canada Ltd. 8500 Delmeade Road Town of Mount Royal QUEBEC, H4T 1L6	Pamphlets, posters, kits of information (Recipe booklets also) Request order form and list of publications.
American Dental Association 211 East Chicago Avenue CHICAGO, Illinois	Excellent pamphlets, charts, posters, comics for children, parents, blind: Special Nutrition information. Request a catalogue.
Canadian Dental Association Bureau of Public Information 1815 Alta Vista Drive OTTAWA, Ontario K1G 3Y6	Dental posters, Pamphlets, films.
Health and Welfare Canada Fitness and Amateur Sports Branch Journal Towers 365 Laurier Avenue OTTAWA, Ontario.	"Fit Kit" on physical fitness.
Food Advisory Division Canada Department of Agriculture Sir John Carling Building Carling Avenue OTTAWA, Ontario	Food cost calculator.
Council on Food and Nutrition American Medical Association 535 North Dearhorn St. CHICAGO, Illinois 60610	Research and technical materials.
National Dairy Council 6300 North River Road ROSEMONT, Illinois 60018	Pamphlets, posters, books, teaching aides, films. Excellent resource materials for all ages on balanced diet, food, nutrients, weight control and health.

Educational Services Health Protection Branch Department of National Health and Welfare OTTAWA, Ontario K1A 1B7	Films, slides, pamphlets, and visual aides. Food safety pamphlets, food guide, nutrient tables, information on food additives and food sanitation regulation.
U.S. Department of Agriculture Division of Home Economics Federal Extension Service WASHINGTON, D.C. 20250	Material for working with low-income families and foods (care, preparation, preservation)
Food and Agricultural Organization of United Nations Information Liaison Office Room 372, United Nations NEW YORK, New York 10017	Material for working with low-income families and foods (care, preparation, preservation)
Society for Nutrition Education 2140 Shattuck Avenue Suite 1110 BERKLEY, California 94704	Nutrition information of all types. Films, posters, pamphlets, books. Request catalogue and order forms.
La Leche Information Group Bev Sartain YELLOWKNIFE, N.W.T.	Pamphlets, reference material on breast feeding books and infant and child feeding.
Potato Board 55 Union Street SAN FRANCISCO, California 94111	Free booklet "Nutrition in the News, a communications Manual" How to write news releases and media nutrition messages.

NUTRITION BOOKS

Where can you find reliable nutrition information? Here is a list of books worth reading.

If you find a book that you're uncertain about and wish to find out if the information is reliable, contact the Dietetics and Nutrition Consultant, Department of Health and Social Development, Stanton Yellowknife Hospital, Yellowknife, N.W.T.

Books Recommended

Chaney, M.S., and Ross, M.L. Nutrition. 7th ed. Boston: Houghton Mifflin Co., 1966.

Chant-Robertson, E., The Right Combination, Gage Educational Publishing Toronto, 1975.

Chant-Robertson, E., and Wood, M. Today's Child. Toronto: Burns and McEachern, 1971.

Deutsch, R. The Family Guide to Better Food and Better Health. Des Moines: Meredith Corporation, 1971.

Proceedings of the Third International Symposium on Circumpolar Health. Yellowknife, N.W.T., 1974. Edited by Ray J. Shephard, S. Itoh, Published by Health & Welfare Canada, Medical Services Branch, N.W.T. Region, University of Toronto Press, Toronto.

Martin, E.A. Nutrition in Action. 3rd ed. New York: Holt, Rinehart, and Winston, Inc., 1971.